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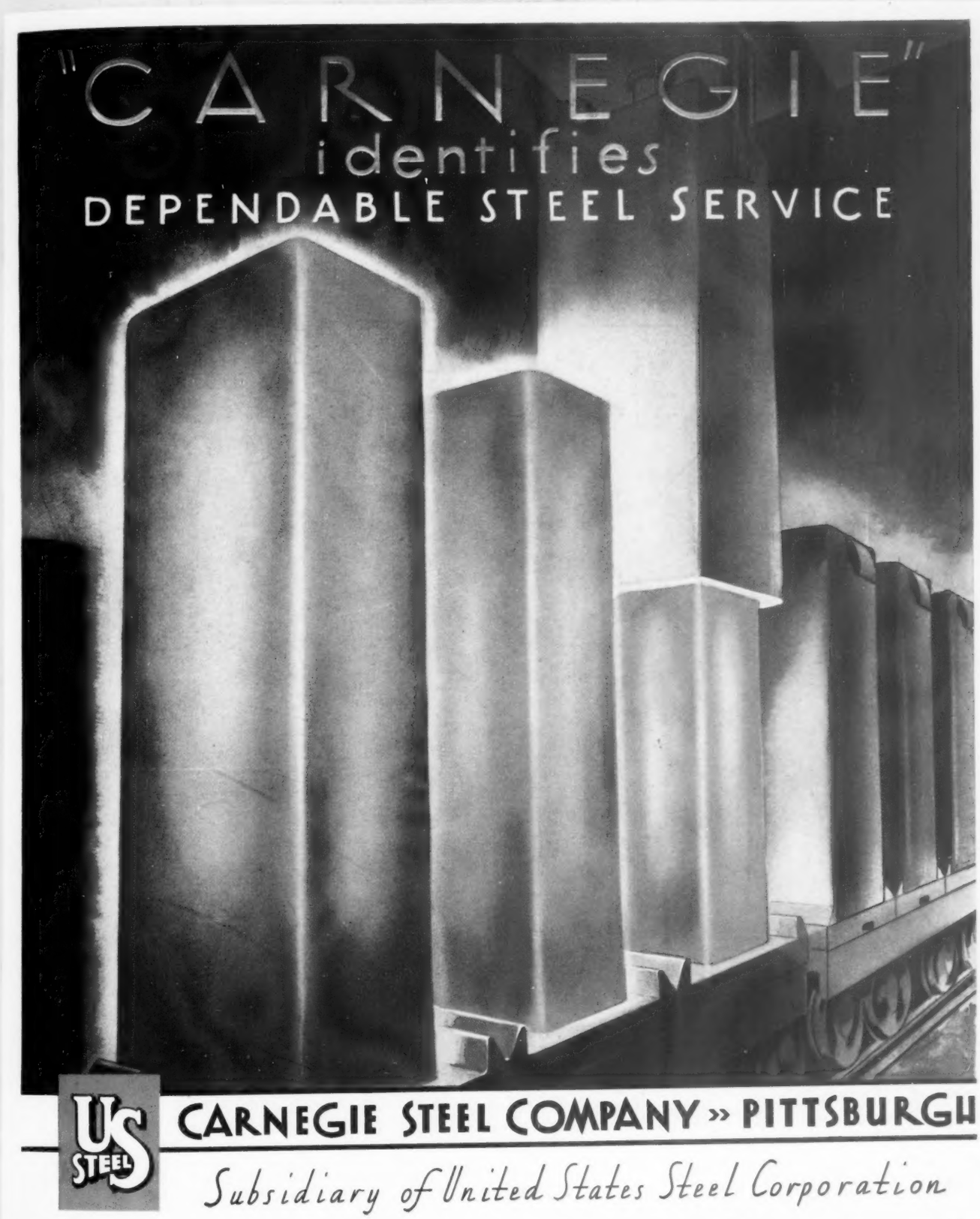
October 23, 1930



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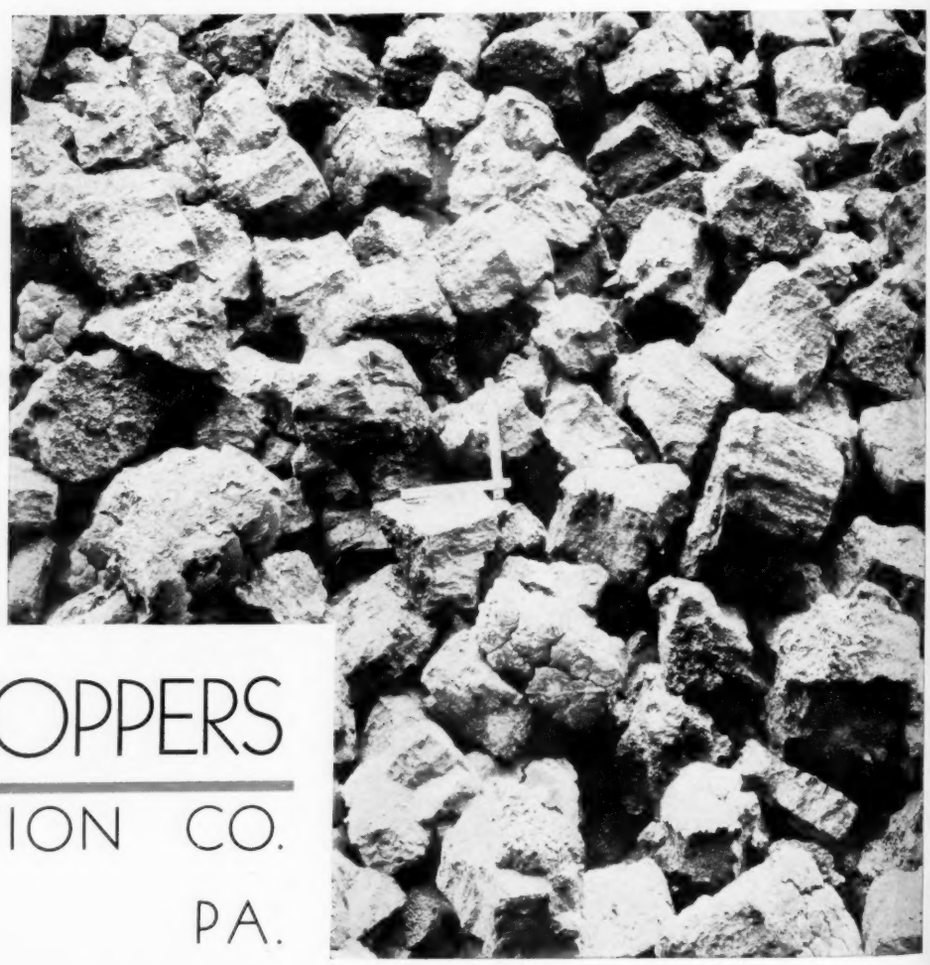

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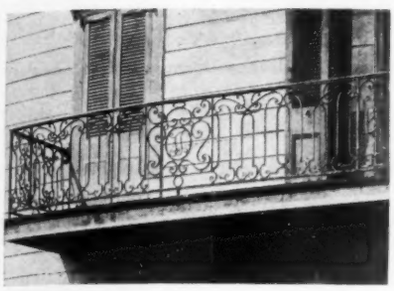

Ornamental Ironwork Preserves Early American Traditions. Page 47

THIS WEEK:

WHO will be the first to "cash in" on the potential market for steel frame houses? When will the steel industry fully appreciate the possibilities of the market? Beyond question here is one of the largest fields for steel, and yet the surface barely has been scratched. A few companies are struggling hard to popularize the steel-frame house; they should be encouraged and aided, and the movement should be broadened by the active interest of more steel producers. STEEL *is publishing a series of three articles on this subject. The first appeared in the Oct.* 16 *issue; the second begins on page* 57 *of this issue, and the third will be published at an early date.*

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Volume 87 Number 17

STEEL

For forty-eight years—IRON TRADE REVIEW

PRODUCTION ◆ PROCESSING ◆ DISTRIBUTION ◆ USE

This Week in Steel

IT WAS Hoover the human rather than Hoover the President or engineer who said, "As a nation we must prevent hunger and cold to those of our people who are in honest difficulties," on summoning six of his cabinet officers and the governor of the federal reserve board last Saturday to stimulate federal constructional and relief activities to alleviate unemployment. There was a touch of the director general of the Belgian relief as the President marshaled his energies on behalf of the workless as the first cold wave of the winter was coagulating much of the North. Not alone was the President in sensing the necessity for removing some of the sting of winter, as New York, Chicago, Detroit, Cleveland—to cite four representative communities—also are quickening their efforts to expedite public works (Page 23), some of which will accelerate material markets moderately. These efforts "to prevent hunger and cold to those in honest difficulties" may be big news this winter; they may again unleash the President's peculiar gift to assist humanity and may excite more sympathy for him. . . . This humanity of Mr. Hoover is a trait of the man and not a characteristic of the engineer, if a speaker at the dedication of the new $1,200,000 laboratory for mechanical and electrical engineering at Lehigh university be credited. The engineer in industry today lacks human understanding and acquaintance with world affairs, it was charged (Page 26). Among those hearing this indictment and honoring James Ward Packard, donor of the laboratory, were "Doctors" Schwab and Grace, of steel fame.

Labor Goes Slow on 5-Hour Day

Organized labor, like other agencies trying to cope with unemployment, finds it easier to talk than to act. At the Boston convention of the American Federation of Labor the 5-hour day was advanced as a panacea, but on mature thought the federation referred the matter to a committee, where it will simmer for a year (Page 27). The federation, however, took a stand for stringent application of immigration laws to stop the trickle of labor through Ellis Island. . . . Industrial engineers, in convention at Washington, perceive in the business situation a challenge to their profession (Page 56) and redoubled efforts for more intelligent planning of production and consumption may result.

Try To Make It "Tight Little Empire"

Quotas may be utilized not only to check immigration, as the American federation suggests, but also to diminish the inflow of commodities. The Imperial Conference of the British Empire has not enthused over Canada's proposal that a tariff wall without interior partitions be erected

International Newsreel Photo

Looking down 1048 feet, from the 88th story of the new Empire State building, New York, steel is indeed revealed as a vertical material.

around the empire, but the labor government of England is advancing the quota plan (Page 25) as a means of stimulating intra-empire trade. That is, if England buys 75 per cent of her wheat in Canada, the dominion in turn must place a proportionate amount of her steel in England. Recalling that the continental steel entente's success was only concurrent with conditions prompting the entente, a good many are dubious of such schemes.

Ornamental Iron Attempts Renaissance

Century-old designs in wrought and cast iron, rich in the traditions of early America, both north and south, suggest the adaption of the now-popular corrosion-resistance steels for this type of decorative effect. The Vieux Carre district of New Orleans presents some remarkable examples of the handiwork of Spanish-French and American artisans (Page 47). . . . Old as is this art, it still flourishes. When the National-al Association of Ornamental Iron, Bronze and Wire Manufacturers met in Baltimore last week, with the largest attendance in the history of the association, a conspectus revealed that with practically no promotional effort the value of products of the industry exceeds $50,000,000 annually. To develop the apparently large market thus far uncultivated, a publicity and advertising program was voted (Page 27).

Should 20 Per Cent Ruin Other 80?

Direct selling, a principle the Institute of Scrap Iron and Steel Inc. has been combatting, is also plaguing the Concrete Reinforcing Bar institute. Only 20 per cent of the reinforcing bars used today are sold direct by mills, according to the president of the institute (Page 27), yet the market for the remaining 80 per cent is severely disturbed. . . . Industry is an inverted pyramid resting on the machine tool manufacturer, members of the National Machine Tool Builders' association were told at their recent meeting (Page 24). To clothe, house, feed 125,000,000 persons in the United States the final responsibility in this machine age rests with 350 machine tool builders. . . . Of the machine tools in use today, a minimum of 40 per cent and possibly as high as 70 per cent is ten years old and hence obsolete, according to a survey presented at the tool builders' convention (Page 50).

Chicago Watches Railroads, Revolutions

Railroad and farm implement business spells feast or famine to Chicago's steel industry. At present, with western roads committing themselves for their 1931 rails and fastenings, the outlook is a shade brighter than in districts dependent upon the automotive industry. Railroad shops are being operated a little more fully, partially because of the trend toward construction of cars there. Implemement manufacturers in territory tributary to Chicago are watching the South American revolutions with a keen eye to the effect on buying (Page 37). . . . Efforts to impose higher freight rates on coal, especially of coking quality, is disturbing to Chicago, and at a recent hearing (Page 24) vigorous objections were lodged. The representative of a blast furnace at the Soo contends that 40 per cent of the cost of making pig iron there is coal. . . . Trust Chicago to remember. For as long as 18 years orders to certain railroads to eliminate grade crossings have been ignored, but with unemployment looking large, the city council is overlooking no opportunities. A fair tonnage of steel would be released if the council succeeds (Page 23).

Merger Case Reaches Argument Stage

Acrid as the Bethlehem-Sheet & Tube merger trial at Youngstown has grown at times, the proceedings during the taking of testimony were mild compared with the vigor with which attorneys for the opponents are presenting their final arguments (Page 25). Eugene Grace, president of Bethlehem, is described as "the iron hand" behind the merger; James A. Campbell, chairman of Sheet & Tube, as a "tired veteran." The proponents, of course, will also have their day in court to clothe their sentiments colorfully. . . . So far as the steel markets are concerned, efforts within to keep up courage have been dampened considerably by exterior forces, notably the stock market. The railroads are placing rails in good volume, and one car order alone insures October being the best car-buying month since March, but these orders are not for rolling until the first quarter. Only the building industry of the major consumers of steel, except railroads, is holding its own (Page 73).

What Is New, Technically, in Steel

Identifying inclusions, which cause dirty steel, long has held open-hearth steelmakers at bay. The investigations being carried out by the bureau of mines, Pittsburgh, gradually are clarifying the problem (Page 53) and are opening up new roads of inquiry of interest to all open-hearth steel melters. . . . Batch handling of material in racks or cribs has minimized handling charges on many occasions. A pipemaker employing this system of handling material in and out of storage (Page 52) no longer is faced with congested conditions at the shipping end. A storage capacity equivalent to the loading capacity of 950 gondolas has changed all this. . . . Warpage and distortion are brought to mind at the mention of jigs built up from standard shapes by the arc-welding process. No excuse exists for harboring such a thought after becoming acquainted with shop methods employed by a large electrical manufacturing company (Page 54).

Efforts To Relieve Labor Situation Are Quickened

AS A nation, we must prevent hunger and cold to those of our people who are in honest difficulties."

This keynote, sounded by President Hoover in summoning six of his cabinet members and the governor of the federal reserve bank to "formulate plans continuing and strengthening the organization of federal activities for employment during the winter," also epitomizes efforts under way in New York, Chicago, Detroit and other cities to alleviate unemployment.

Advent of unseasonably cold weather in the northern states, it is feared, will aggravate the situation and undoubtedly will spur relief measures. It is only natural to expect that as campaigns preceding the November elections draw to their climax the business situation will be stressed unfavorably.

Unemployment and the business depression, with the efforts to relieve them, apparently will be big news for a few weeks at least.

◆ ◆ ◆

Hoover Names Woods To Organize Federal Relief

Washington — President Hoover Tuesday invited Col. Arthur Woods, former police commissioner of New York and in charge of administrative work for the Harding unemployment commission in 1921, to head up the relief work envisioned by the President as necessary at this time.

Meanwhile, the Hoover cabinet committee—Secretaries Lamont, Wilbur, Hyde, Davis, Mellon and Hurley, and Governor Meyer of the federal reserve board—was holding its first meeting to spur employment. This committee was named by the President last Friday.

The committee will co-ordinate the work of Colonel Woods through the government departments. Colonel Woods also will co-operate with the country's industries but no plan in this respect has been worked out definitely as yet. It was stated at the White House Tuesday that Mr. Hoover will ask congress to waive restrictions on public building appropriations so other government contracts can go ahead immediately. During the World war this right was given to President Wilson.

In session Tuesday latest figures available show about 3,500,000 people are out of employment. Nearly always 1,000,000 persons are out of work at this season, even in normal times.

President Hoover itemizes the activities in which he expects the federal government will co-operate to alleviate conditions in saying that, "through co-operation of the government with the governors and employment organizations of the states and local communities, through development of methods with the national industries, and thirdly through indirect federal employment in public works' construction" can his recently named committee formulate plans to assist the unemployed as winter approaches.

Simply through affording the unemployed a chance to work will the committee work out its plans and it is distinctly understood that the government will not initiate a dole. Rather will efforts be directed to rush to a more active stage construction of public works, authorizations and appropriations for which were given by the last congress.

Chicago Spurs Federal Work; Proposes Large Fund

Chicago—Through the efforts of a group of 40 business men and a city councilman's Chicago seeks to raise a dole-fund to cut red tape surrounding awarding government contracts in this district, and to stimulate expenditures by four railroads.

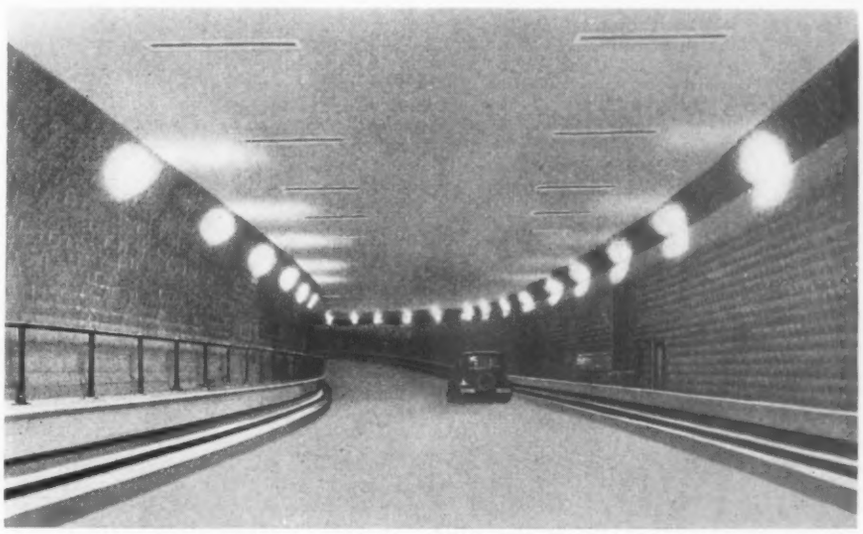
The 40 men met last week at the bidding of the Builders' Construction Employers' association and propose listing 10,000 local citizens to be asked to contribute $200 monthly for six months to accumulate a $12,000,000 fund for charitable distribution. In addition, the President will be petitioned at Washington to award contract for Chicago's proposed $14,000,000 post office.

The chairman of the city council on track elevations wants to compel four railroads locally to begin work on contracts within the city, some of which have been in default as long as 18 years. Some $14,000,000, he claims, would be provided for unemployment relief.

New York Fund To Put 10,000 Men at Work

New York—The Emergency Employment committee with an executive group of 23, largely bankers and in-

(*Concluded on Page* 27)



STAINLESS STEEL REFLECTORS LIGHT INTERNATIONAL TUNNEL

In two long rows on each side and near the ceiling of the new mile-long vehicular tunnel connecting Detroit and Windsor, Ont., are 570 reflectors made of Nirosta metal, a nontarnishing steel alloy. The reflectors are 19 x 15 inches and are embedded in the walls. Engineers estimate the life of the steel tubing which encases the tunnel as 300 years, and that of the protected cement and concrete with which it is lined as considerably longer. The tunnel cost $25,000,000 and will be open for traffic in November

Quarter Billion Dollars Put into Gas Lines This Year

IMPROVEMENTS in steel pipe manufacture and material with modern mechanical devices for pipe line construction will result in an investment of $250,000,000 in long distance natural gas transmission lines during the present year, according to E. F. McKay, manager, Oklahoma Utilities association and Scott Turner, director of the United States bureau of mines, who addressed the annual convention of the American Gas association at Atlantic City, N. J.

Transmission of gas three years ago for a distance of more than 250 miles from its source was a noteworthy engineering feat, Mr. Turner claimed. Now, due to great progress made in steel pipe manufacture enabling transportation under high pressure, lines 1000 miles in length are being laid.

Ditching machinery also has had an important role in the extension of pipe lines, displacing pick and shovel methods in laying operations.

Clifford E. Paige, vice president, Brooklyn Union Gas Co., was elected president of the association, which met Oct. 13-17. Mr. Paige succeeds Bernard J. Mullaney, vice president, Peoples Gas Light & Coke Co., Chicago. Other officers include: Vice presidents, R. W. Gallagher, Cleveland; N. C. McGowan, Houston, Tex., and Arthur Hewitt, Toronto, Ont.; treasurer, William J. Welsh, New York; and secretary, K. R. Boyes, New York.

New methods of phenol removal were recommended, especially that of the Koppers type removal plant at Hamilton, O., by E. G. Boyer, Philadelphia Electric Co., who discussed stream pollution from waste liquors from coke-plant ammonia stills.

The laboratory committee reported that 75 per cent of all gas appliances sold during the year carried the seal of approval of the association laboratories. Equipment for testing during the year ending Oct. 1 included: Gas ranges, 124; space heaters, 88; boilers and furnaces, 69; water heaters, 59; flexible gas tubing, 9; hot plates and laundry stoves, 8; incinerators, 7, and clothes dryers, 2.

Samuel Insull, Chicago, told the convention that gas and other utilities should take advantage of low price levels at this time for expansions sure to be needed with resumption of a more active industrial and domestic demand.

It was announced that a special annual award for gas utilities, similar to the Coffin prizes for electrical companies, will be offered by the Gas association, to be known as the Samuel Insull award. Purpose of the award is to give official recognition of the gas industry to the outstanding accomplishments of members in rendering distinguished public service.

Stressing the importance of conservation, H. C. Morris, Dallas, Tex., declared there are approximately 80,000 miles of natural gas transmission lines and that thus far this year 12,000 miles have been started or projected.

Nearly 300 manufacturers had exhibits in the exposition held in connection with the convention. Latest in gas refrigeration ranges, hot water heaters, furnaces and scores of appliances was shown. Also on display were several types of steel pipe used in long distance transportation of natural gas.

LAYING THE LONGEST GASOLINE LINE

A tractor with special equipment, and a trained crew make short work of "planting" this 800-mile line from Texas to St. Louis. The crew is here shown making a bend in the pipe line. Electric welded pipe manufactured by the Republic Steel Corp. is being used

Calls Making of Machine Tools Key Industry

The machine tool industry, while relatively small, is a key industry which holds together the arch of modern civilization, declared Ernest F. DuBrul, general manager, National Machine Tool Builders' association in a radio address from WOR, Newark, N. J., Oct. 18.

Civilization is like an inverted pyramid, said Mr. DuBrul, in that millions of persons purchase goods from several hundred thousand stores, but these stores are supplied by only 200,000 factories. Of the latter, only about 10,000 make the industrial machinery the other 190,000 use. And of these 10,000, only 350 make machine tools, 40 per cent numerically producing 75 per cent of the volume.

Of 125,000,000 of population, less than 60,000 are engaged in the manufacture of machine tools, according to Mr. DuBrul.

Chicago Steelmakers Fight Coal Rate Increase

Chicago—Adjournment has been taken in the Chicago hearings of the lake cargo coal case in progress for more than a week before Examiner C. M. Bardwell, of the interstate commerce commission. Testimony will be resumed Nov. 12 in Washington.

Coal consuming interests of Michigan, Illinois and northwestern states submitted figures on shipments and use of coal. Protest was voiced against any increase in freight rates on coal from eastern mines.

Illinois coal operators also stepped into the controversy with vigorous objection to the petition of the Ohio and Pennsylvania interests that the freight rates on their shipments to Lake Erie ports be reduced, or the West Virginia-Kentucky rates be increased.

W. J. Hammond, traffic manager,

Inland Steel Co., Chicago, presented figures covering consumption of coal by his company, Youngstown Sheet & Tube Co., Interlake Iron Corp., and Wisconsin Steel Co., all in this district. He asserted that receipts of water-borne coal for steel companies in the Chicago area amounted to more than 5,000,000 tons last year, and stated that an increase of 10 cents a ton on coal freight would be a serious handicap to Chicago steelworks in competition with others located nearer coal sources of supply. Such increase would mean an added cost of 15 cents a ton on coke production, it was stated.

T. F. Rahilly, Algoma Steel Corp., Sault Ste. Marie, Ont., stated that coal cost represents 40 per cent of the cost of pig iron. He stated his company, which owns coal mines in West Virginia, has had to close them because the freight rate advantage already obtained by Ohio and Pennsylvania mines in previous rate litigation, has given the northern mines virtual control of the lake market.

British Consider Quotas

A proposal to stimulate intra-empire trade by placing purchases on a quota basis is before the Imperial Conference of the British Empire at London. If Great Britain, for example, should make a commitment to purchase 50 per cent of her supply of wheat from Canada, then Canada would be obliged to reciprocate by taking a commensurate amount of steel and iron from Great Britain. The plan, advocated by former Premier Baldwin, also has the backing of the present labor government.

The proposal of Premier Bennett of Canada to erect a tariff wall around the British possessions, with free trade within the wall, has been laid on the table for this year.

To Be Tariff Man Abroad

Washington—John F. Bethune, for many years secretary of the United States tariff commission, has been appointed the commission's representative in Europe, beginning early in 1931.

Mr. Bethune will maintain headquarters with a staff in Brussels, Belgium. He will carry out such inquiries as to production costs, wholesale prices, etc., as the commission may find necessary.

Demag's Build Skyscraper

On page 24 of STEEL for Sept. 25 was printed a photograph of the first commercial skyscraper on the Continent, being erected in Antwerp. It was an omission not to record that the contractors were Demag's of Duisburg. The photograph was taken from the *Demag News*.

Merger Opponents Stress Fraud Charge in Arguments

FINAL arguments in the suit to enjoin the merger of the Bethlehem Steel Corp., and the Youngstown Sheet & Tube Co., are in progress in the Mahoning county court of common pleas, Youngstown, O. Voluminous briefs were filed by counsel for the plaintiffs, the International Shares Corp., and executors of the estate of Myron C. Wick Jr., and by lawyers for Bethlehem and Sheet & Tube. Oral arguments are expected to continue throughout the present week. Hearing of the suit consumed three months, after which an adjournment was taken for three weeks. Court resumed Monday, Oct. 20. Several weeks may elapse before a decision is handed down by Judge David G. Jenkins.

Luther Day, counsel for International Shares, one of the Cyrus S. Eaton interests, began the arguments. He declared that Bethlehem and Pickands, Mather & Co. dominated the merger negotiations, and that the deal was "wilfully misrepresented" to Sheet & Tube stockholders. Eugene G. Grace, Bethlehem president, was referred to as "the iron hand" behind the proceedings. James A. Campbell, 79 years old, Sheet & Tube chairman, was pictured a "tired veteran" ready to relinquish control, and easily led.

Bethlehem, he charged, was "openly and secretly" working to bring about the merger to obtain a foothold in the Middle West, and Pickands, Mather assisted for the advantages the firm could derive through close iron ore contracts and associations. Henry G. Dalton, Pickands, Mather partner, Day declared, had no right to participate in the negotiations because he was a director of Sheet & Tube and also of Bethlehem, and he had more to gain through his firm's ore contracts with Bethlehem than through personal stock ownership in Sheet & Tube. Mr. Day directed the court's attention to the money sent by Bethlehem to Pickands, Mather which was to be used indirectly in purchasing stock to be voted for the merger.

Criticizes "Strategy Committee"

Mr. Day referred disaparagingly to the action of the pro-merger "strategy committee" in offering to stockholders reports of three auditing firms supporting the original audit by Price, Waterhouse & Co. These three confirming reports, he claimed, were practically written by the senior partner of Price, Waterhouse & Co., "whose own work was being investigated." He said the testimony showed representatives of the three auditing firms met at 10 a.m. and were ready to report at 2 p.m., "on the merits of a proposition which it took the court more than a month to investigate." The publicity given these three reports, he said, constituted "a barefaced, arrogant fraud."

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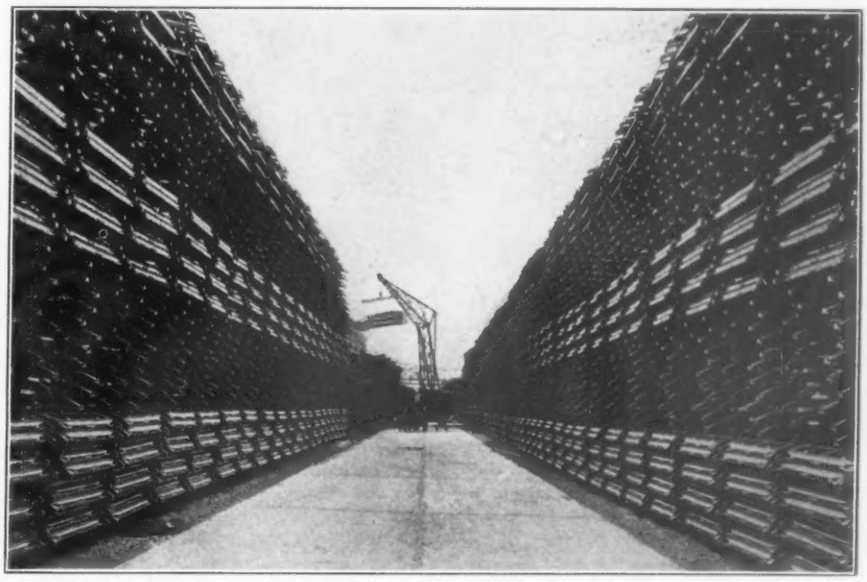


THE BOTTOM ROW PROVES AN AUTO FRAME MUST BE STRONG

Storage pile at plant of A. O. Smith Corp., Milwaukee. Piling is being done by a crane manufactured by the Harnischfeger Corp., Milwaukee

Industrial Leaders Speak at Lehigh Dedication

DISTINGUISHED scientists and industrialists from all parts of the United States and Canada attended the formal dedication of the James Ward Packard laboratory for electrical and mechanical engineering at Lehigh university, Bethlehem, Pa., Oct. 15. They met in honor of the late pioneer electrical and automobile manufacturer, whose gift has made the laboratory possible and to participate in conferences bearing on the relationship between technical schools and industry, which the occasion so befittingly provided. These conferences were held on the following two days.

It was a notable gathering with representatives from approximately 125 institutions of higher learning, 15 technical and educational associations and a large number and variety of industries. The steel industry was especially well represented. The guest of honor was Mrs. James Ward Packard.

Schwab Sees Bright Future

Charles M. Schwab, chairman of the board, Bethlehem Steel Corp., and a trustee of Lehigh, delivered the dedicatory address in the auditorium of the new $1,200,000 laboratory. It was an address typical of his manner, charged with humor, sentiment, sound advice and sincere admonitions. He emphasized the importance of science to industry and described it as a safeguard to democracy and as that which holds forth an ever-brightening promise to labor through emancipation from heavy toil, reduced cost of living and greater opportunity.

Science will cure unemployment, he declared. Having produced new industries in the past, it will produce many in the future to the end that all will find continuous employment. As one active in industry for more than 50 years, the speaker appealed to educators to do all in their power to develop in students a true democratic character, not alone that they may do greater justice to others, but also to themselves. Much, he added, is to be learned from the other fellow, though the latter may not have a college degree. Incidentally, this thought was stressed by more than one speaker in the conferences which were to follow.

Eugene G. Grace, president, Bethlehem Steel Corp., participated in the dedicatory exercises, when, as president of the board of trustees of Lehigh university, he accepted the keys of the laboratory from the architects, and, with brief remarks, presented them to Charles Russ Richards, president of the university. President Palmer C. Ricketts, of Rensselaer Polytechnic institute, Troy, N. Y., introduced as the dean of technical educators because of his many years in the field, extended greetings from sister institutions.

What industry expects of technical schools and what technical schools expect of industry were subjects which dominated discussion the following day. On the final day attention was focused on the future needs of American industry. A formal dinner in honor of Mrs. Packard was held on the evening of Oct. 16 at the Hotel Bethlehem. William C. Dickerman, president of the American Locomotive Co., New York, presided.

Technic and Humanity Needed

Discussing what industry expects of the technical schools and considering the subject from the aspect of their own individual fields were Frank A. Merrick, president, Westinghouse Electric & Mfg. Co.; Alfred R. Glancy, president, Oakland Motor Car Co., Pontiac, Mich.; and Bancroft Gherardi, vice president and chief engineer, American Telephone & Telegraph Co., New York.

Papers also were presented by Matthew S. Sloan, president, Brooklyn Edison Co., Brooklyn; and by Lewis W. Baldwin, president, Missouri Pacific railway, St. Louis. William Butterworth, president, Deere & Co., Moline, Ill., and president, United States Chamber of Commerce, due to illness was unable to present a paper in which he intended to outline what general manufacturing industries expect of technical schools.

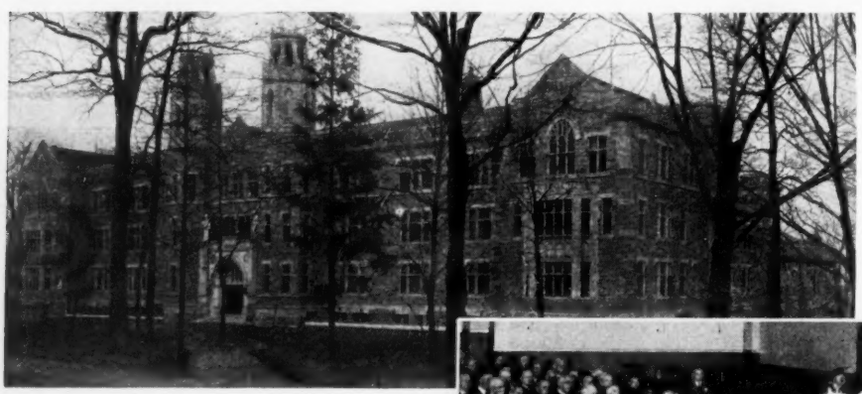
One of the thoughts stressed by the industrialists was the desirability of developing technical men with a human understanding and acquaint-

(*Concluded on Page* 64)

'Dr. Schwab' Is Disappointed

"I am disappointed in one thing. Mr. E. G. Grace, to whom I owe so much, and have been associated with so long, and Dr. Charles Russ Richards, have neither of them referred to me as 'Dr. Schwab,' I am a doctor —a Lehigh doctor; it is at your hands that I was made one and I am proud of the fact."

—Abstract from dedicatory address.



(Upper left)—James Ward Packard laboratory of electrical and mechanical engineering at Lehigh university dedicated with impressive ceremony, Oct. 15. The building, a gift of the late Mr. Packard, was erected at a cost of $1,200,000. (Lower right)—Charles M. Schwab making dedicatory address. Seated immediately behind Mr. Schwab is Mrs. James Ward Packard. On Mrs. Packard's left and holding the program is Dr. Charles Russ Richards, president of Lehigh, and on her right is Eugene G. Grace, president of the board of trustees

New York Aids Workless

(*Concluded from Page* 23)

cluding G. F. Baker Jr., Albert H. Wiggin, Thomas W. Lamont, Myron C. Taylor, Owen D. Young and Walter Gifford, was formed last week and will seek to provide at least $150,000 weekly as a payroll for unemployed heads of families in greater New York.

The city, through the board of estimate, has decided to add $5,000,000 to 1931's tentative budget and included is a flat $1,000,000 for the relief of unemployment, to be allotted by a method to be determined later. Included are funds for readjustment of municipal wages. The department of parks for one, can foresee employment of from 3000 to 5000 additional men over the winter. By minimum living standards the $150,000 fund when raised will give work to 10,000 weekly.

Employment Service Sees Brighter Outlook in Steel

Washington—In connection with a statement on September employment the employment service of the department of labor states "the level of production and employment in iron and steel plants showed little change; however, the outlook was somewhat brighter in this industry in several of the iron and steel centers toward the close of the month."

The service calls attention also to the fact that "seasonal influences were largely responsible for the increase in employment which occurred in certain sections of the country during September."

It further remarks that "activities in the boat building yards, particularly those located in Massachusetts, New Jersey, and Pennsylvania, increased in September, providing employment for additional skilled and semiskilled workers. Plants manufacturing automobiles and automobile accessories remained on a curtailed production basis."

More Labor Is Employed in Some Localities

Chicago—Employment reports for the east-north-central district of the United States, as of Sept. 30, show slight improvement in Michigan and some localities in Indiana. In Illinois, Wisconsin, and other parts of Indiana, part time work marked operations in many industries.

Most industrial operations in Illinois continued below normal and the supply of labor exceeded demand, although employment and production in the bituminous coal industry showed material improvement. Public utility construction and repairs furnished employment for the largest classification in the building groups.

Will Study 5-Hour Day

Boston—The executive council of the American Federation of Labor, following receipt of the resolution of the metal trades department favoring a 5-hour day, is to study the problem and collect necessary statistical data to be presented at next year's convention. The federation already is committed to the 5-day week.

The proposed shortening of the work-week, it is claimed, is less drastic than the increase in per capita production resulting from the mechanization of industry.

Publicity Program To Push Ornamental Iron

Real estate men have discovered that the use of ornamental iron and other metals as architectural features in residence construction makes the houses easier to sell. This fact was pointed out at the twenty-third annual meeting of the National Association of Ornamental Iron, Bronze and Wire Manufacturers, held at Baltimore last week.

The meeting was attended by over 180 members, a record. The association now has 223 memebrs, which includes 14 new members since Sept. 1. These 223 members represent a plant investment of about $35,000,00 or nearly 40 per cent of the entire industry.

The association has never gathered statistics on actual production but discussion at the meeting brought out figures covering the production of 105 plants, estimated to represent one-fifth of the country's total. These 105 plants last year produced ornamental iron valued at $10,000,000. On this basis the ornamental iron industry of the country would have a total annual production valued at about $50,000,000.

An accomplishment of the convention was the launching of an ambitious publiicty program. Several speakers pointed out the need for education in the use of ornamental iron and bronze and other products of members, and a publicity firm in New York was authorized to launch a program starting Nov. 1. Other important features of the convention had to do with uniform cost accounting and adoption of standard trade practice rules.

Says Direct Mill Sales of Concrete Bars Is Biggest Competitive Problem

DIRECT mill competition in the sale of reinforcing concrete bars is the most serious competitive problem confronting reinforcing bar fabricators, declared C. Louis Meyer, president of the Concrete Reinforcing Bar institute, Chicago, at the opening session of the institute's semiannual meeting at Briarcliff Lodge, New York, Oct. 20.

"The solution of our problem would be the elimination of direct mill sales," said Mr. Meyer, also head of the Concrete Engineering Co., Omaha, Nebr. "No more than 20 per cent of the total reinforcing bar tonnage of the country is sold direct by the mills, the remaining 80 per cent being sold by reinforcing bar fabricators and jobbers.If it is true that the sale of this 20 per cent is the cause of lower warehouse and lower mill prices, then both mills and fabricators are suffering a tremendous loss.

"To obtain this 20 per cent of the volume direct, the mills are accepting a greater loss because of the lower price range on all of the tonnage. If that tonnage which is now being sold direct by the mills can be diverted through the fabricators, it will offer sufficient additional tonnage to operate all of the fabricating shops to a reasonable capacity.

"This would immediately relieve the keenly competitive conditions for both mills and fabricators. There would be enough business for all of the bar companies, and the mills would be getting just as much tonnage as at present.

"Bar companies or fabricators serve a very definite and important place in the distribution of steel. Through their warehouses located in the principal cities throughout the country they serve the building and construction industry in a manner which the mills could not possibly hope to do, if the whole burden of this distribution were suddenly placed upon their shoulders.

"Furthermore, much of the development and promotion of reinforcing bars is performed by the bar companies, so that the steel mills derive the benefit of this new business. This additional tonnage is often newly created business which is directly traceable to the promotional efforts of the concrete bar companies."

Merger Foes in Final Arguments

(*Concluded from Page* 25)

"The merger proponents," he asserted, "did not dare disclose the Price, Waterhouse audit to Sheet & Tube stockholders, after Mr. Eaton charged a grevious error had been committed."

Mr. Day resumed his arguments Tuesday, discussing the Sheet & Tube shares voted for the merger which had been bought or sold after the closing date, March 22, and transferred before or after the date of the stockholders' meeting, thus involving proxies voted for the merger to the number of 61,000 shares. Besides these, he questioned the validity of proxies voted on 19,000 additional Sheet & Tube shares, not transferred on the books until after the meeting, these making up 80,000 share proxies which he claimed were illegal. He said some of the proxies had been purchased contrary to law, and that the anticipated lease of the Stambaugh building in Youngstown to Bethlehem interests was a consideration for 8000 proxies favoring the merger.

Mr. Day also declared that Pickands, Mather's 60,000 shares were voted illegally by proxies as Bethlehem had a hand in their purchase, and he also disputed the right of Bethlehem to pass on the price to be paid by Sheet & Tube to the dissenting stockholders. The unconstitutionality of the Ohio corporation code was argued on various grounds.

In their brief, counsel for the plaintiffs contend the merger contract was not authorized by the Sheet & Tube shareholders in the manner provided by the general code of Ohio. The main propositions are summarized in the following two points:

"(I) The contract is void because of the fraud and breach of duty of the board of directors of Youngstown in negotiating and approving the contract, in withholding information from the stockholders and in giving to the stockholders false and misleading information.

"(II) The contract is void because affected by undisclosed adverse interests and fraudulent conduct of dominating and participating directors with whom Bethlehem conspired, because of the fraud of Bethlehem and because of grossly inadequate consideration."

Old Boltmaker Liquidates

New York—Greenlie-Halliday Co., 499 Water street, believed to have been the first manufacturer of bolts and nuts in the New York district, has started liquidation of its affairs.

Canadian Iron Again Off But Steel Output Holds

Toronto, Ont.—Production of pig iron in Canada for September amounted to 48,395 long tons. This was the fourth consecutive month this year to show a new low, tonnage for September being 16 per cent under the 57,459 tons reported for August, and 51 per cent less than the 98,816 tons produced in September, 1929. For the first nine months of the year cumulative production of pig iron was 621,716 long tons, compared with 829,687 tons in the first three quarters of 1929, and 745,473 tons for the corresponding period of 1928.

During the month one furnace was blown out by the Steel Co. of Canada Ltd., Hamilton, Ont., with the result that at the close of the month only four stacks were blowing, having a daily capacity of 1750 tons per day of about 41 per cent of the total capacity of all blast furnaces in Canada. Active furnaces were: Dominion Iron & Steel Co., Sydney, N. S., one; Steel Co. of Canada Ltd., one; Algoma Steel Corp., Sault Ste. Marie, Ont., one; and Canadian Furnace Co., Port Colborne, Ont., one.

September production of steel ingots and direct steel castings at 55,808 tons showed little change from the 57,626 tons of the previous month, but was 44 per cent under the 99,000 tons of September, 1929. For the nine months ending with September this year output of steel ingots and direct steel castings totalled 810,852 tons, 25 per cent below the 1,087,951 tons for the like period of 1929, in turn 18 per cent over the 919,710 tons produced in the three quarters of 1928.

Scrap Freight Rate Higher Per Ton Than Pig Iron

Railroads in 1929 transported 13,527,292 tons of scrap steel and iron on which the freight charges were $29,428,516, according to Benjamin Schwartz, director general, Institute of Scrap Iron and Steel Inc., New York.

Over 1928 this was an increase of $1,780,355 tons and $3,565,501 in revenue. Scrap carrying charges were 27 cents a ton higher than pig iron. The Pennsylvania railroad led all systems with a tonnage of 4,348,192 and a revenue of $6,574,394.

The institute is back of a movement to establish freight rates on scrap on their own merit and not as a percentage of finished material rates.

Standard Casket Hardware Co., Greensburg, Ind., is resuming production following reconstruction after recent fire.

Financial News of Steel Industry

M A. HANNA CO., Cleveland, reports consolidated net income for the quarter ended Sept. 30 of $701,405, or at the rate of $4.96 per share on 141,339 shares of preferred. This compares with income of $1,295,260, or $11.56 a share on 111,994 shares in the like quarter of 1929. The quarterly dividend of $1.75 on the $7 preferred payable Dec. 20 to record of Dec. 5 was declared.

Vanadium Corp. of America, Pittsburgh, has declared the regular quarterly dividend of 75 cents on the common stock but has omitted the usual extra of $1.

Gardner-Denver Co., Quincy, Ill., showed net profit of $720,368 for three quarters of 1930, equal to $3.24 per common share after all charges. Compared to this is the corresponding 1929 earning of $1,132,900 or $5.20 per common share.

Ross Gear & Tool Co., Lafayette, Ind., reports net profit of $26,442 for third quarter of 1930, equal to 17 cents a common share. In comparison third quarter of 1929 showed 64 cents a share or net of $97,411. Three quarters of 1930 show net of $283,390 or $1.88 per share, compared with $533,747, or $3.56 a share in the corresponding 1929 period.

Interlake Iron Co., Chicago, earned net profit of $352,112 equivalent to 17 cents a common share in third quarter, compared with $532,632 or 26 cents a share in the prior quarter, and $764,906 or 38 cents a share in the first quarter.

Midland Steel Products Co., Cleveland, showed earnings of $1,391,671 after all charges except profit sharing and taxes for three quarters of 1930. For first quarter $699,973 was earned, second, $568,023, and third, $123,675.

Copperweld Steel Co., Pittsburgh, has declared a quarterly dividend of 50 cents on its common stock payable Nov. 15 to record of Oct. 31.

E. G. Budd Mfg. Co., Philadelphia, has omitted the quarterly common dividend of 25 cents a share.

Buckeye Steel Casting Co., Columbus, O., has declared the usual one-half of 1 per cent dividend on common stock and 2½ per cent on the preferred, payable Nov. 1 to holders as of Oct. 24.

Sheet Sales Gain Sharply; Govt. Statistics Cheerless

SHEET steel sales of independent mills increased 44 per cent in September while production increased only 3.5 per cent and shipments declined 9 per cent, according to the monthly report of the National Association of Flat Rolled Steel Manufacturers, Cleveland.

Compared with September, 1929, marked losses are shown in sales, production and shipments.

September sales were 58.2 per cent of the independent mills' capacity, and production 48.4 per cent, as the following comparison shows:

	Net tons	Per cent of capacity
Total sales for Sept.	214,454	58.2
Total production	179,928	48.8
Total shipments	186,639	50.7
Unfilled tonnage as of Oct. 1	388,599	105.5
Approximate finished stock on hand awaiting shipments	97,428	26.4
Approximate in stock, unsold	88,363	24.0

The total sheet capacity of the United States for the month of September, 1930, is approximately 545,200 net tons. The capacity on which the above figures are based is 368,500 net tons.

The comparison of monthly totals is:

	Sales	Production	Shipments
Sept., 1929	274,568	302,490	301,330
October	258,810	319,660	291,135
November	134,391	204,071	207,200
December	234,599	181,916	178,575
January, 1930	382,122	291,529	241,677
February	203,315	275,952	241,441
March	299,764	259,658	275,235
April	300,086	308,988	291,601
May	204,589	274,220	266,436
June	137,412	205,675	212,930
July	207,400	186,206	194,767
August	148,969	173,956	205,774
Sept.	214,454	179,928	186,639

Coal Gains for Week

Soft coal mined in the week ended Oct. 11 was preliminarily reported at 9,502,000 net tons, according to the bureau of mines, which is a gain from the prior week's 9,304,000 tons. Including week of Oct. 11, the 1930 total is 355,071,000 tons, not equalling the 406,410,000 tons over the same time of 1929.

Galvanized Ware Gains

Production of galvanized ware in August gained over that of June and July while shipments were a shade lower than in July and considerably in excess of August. Department of commerce figures are as follows:

(In dozens)

1929	Pails and Tubs Production	Pails and Tubs Shipments	Other Ware Production
Aug.	107,004	108,461	53,250
(8 mos.)	1,165,469	1,193,361	383,436
Sept.	113,698	120,297	46,594
Oct.	129,282	135,197	45,117
Nov.	102,400	90,684	32,951
Dec.	112,962	107,733	33,114
Total year	1,624,811	1,647,272	541,212
1930			
Jan.	145,588	154,731	33,982
Feb.	119,739	129,853	35,121
March	135,178	135,602	37,963
April	131,015	120,552	44,058
May	113,645	107,496	44,405
June	89,982	82,956	40,646
July	91,879	104,096	42,056
Aug.	103,050	103,354	46,730
(8 mos)	930,076	938,640	324,961

Auto Output Holds Even

September automobile production at 222,931 units fell only 117 units below the August figure, a larger decline in the passenger division being offset by truck production gains. September's aggregate is the lowest for 1929 and almost half that of the same month last year. Reports are by the department of commerce from 144 manufacturers. Canadian figures from the Dominion bureau of statistics show a slight easing off in the past month:

	United States			Canada
1929	Total	Passenger cars	Trucks	Total
Sept.	415,912	363,471	51,576	13,817
(9 mos.)	4,640,823	3,992,492	634,739	223,853
Oct.	380,017	318,462	60,687	14,523
Nov.	217,573	167,846	48,081	9,424
Dec.	120,007	91,011	27,513	5,495
(Yr.	5,358,420	4,569,811	771,020	263,295
1930				
Jan.	275,374	236,145	38,657	10,388
Feb.	346,940	296,461	49,457	15,548
Mar.	401,313	335,720	64,204	20,730
Apr.	443,038	374,913	67,560	24,257
May	417,406	362,522	54,370	24,672
June	335,477	289,245	45,773	15,090
July*	262,364	222,459	39,664	10,188
Aug.*	223,048	187,037	35,760	9,792
Sept.	222,931	180,547	41,975	7,957
(9 mos.)	2,927,891	2,485,049	437,420	138,622

*Revised.

Truck Shipments Slow

For the third consecutive month shipments of electrical industrial trucks and tractors showed a decline in September, the total being 81, the lowest figure for the year, as reported to the department of commerce. Total shipments for nine months are about two thirds of the total for the same period in 1929. Comparisons follow:

1929	Total	Shipments—Domestic	Shipments—Export
September	158	151	7
(9 mos.)	1,583	1,491	92
October	167	134	33
November	118	110	8
December	151	124	27
Total (year)	2,019	1,859	160
1930			
January	140	123	17
February	113	106	7
March	123	109	14
April	106	101	5
May	144	125	19
June	95	63	32
July	108	99	9
August	92	81	11
September	81	75	6
(9 mos.)	1,002	882	120

Show Higher Index in Foundry Equipment Orders

A two-month lull in demand for foundry equipment ended with September's orders at a 91 ratio to the average monthly orders for three successive years beginning 1922. With the same base, unfilled orders in September were 170.8, contrasted to a 140.2 figure of August. Foundry Equipment Manufacturers' association reports follow for gross orders' index:

	1927	1928	1929	1930
Jan.	180.4	132.7	180.5	160.1
Feb.	198.0	123.6	197.0	196.4
Mar.	131.1	138.6	209.4	164.1
Apr.	130.0	107.7	172.6	122.8
May	134.8	335.6	177.7	92.7
June	138.4	149.1	177.3	102.1
July	89.9	94.8	219.3	90.6
Aug.	106.4	278.0	229.5	85.2
Sept.	80.4	170.0	216.3	91.0
Oct.	98.0	185.0	245.3	.....
Nov.	95.8	197.8	128.6	.....
Dec.	106.8	166.5	208.0	.....

Base: Average monthly shipments for 1922-23-24 taken as 100.

Car Surplus Increases

Washington—Class 1 railroads Sept. 30 had 394,032 surplus freight cars in good repair, compared with 389,687 surplus cars Sept. 23, according to the American Railway association. Of the surplus Sept. 30, coal cars totaled 139,416, box cars 202,398, stock cars 22,153 and refrigerator cars 11,865.

Barrel Production Gains

Production of steel barrels in September turned upward slightly after the low point in August, with 40.3 per cent operation, compared with 39.6 per cent in August. Shipments

increased from August level and unfilled orders gains somewhat, according to the following comparative figures by the department of commerce:

1929	Production	Shipments	Unfilled orders within 30 days
Sept.	**663,531**	**653,890**	**302,632**
(9 mos.)	6,511,304	6,491,428	.....
Oct.	629,976	638,681	298,550
Nov.	572,621	567,257	285,295
Dec.	624,365	618,003	294,797
Total, (year)	8,338,266	8,315,369	.....
1930			
Jan.	650,764	643,120	304,354
Feb.	648,709	643,324	313,349
March	842,186	856,451	452,933
April	769,061	766,617	322,161
May	731,087	736,147	393,843
June	651,559	638,358	319,754
July*	617,420	621,091	311,630
Aug.	553,842	552,265	237,745
Sept.	564,927	565,204	253,745
(9 mos.)	6,029,555	6,022,577	.....

*Revised.

Locomotives Again Down

Railroad locomotive shipments in September totaled 65 units, compared with 77 in August. Foreign shipments in 1930 have been almost nil compared with 1929. Unfilled orders for both electric and steam classes are low for the past year, according to the department of commerce:

1929	Shipments Domestic	Shipments Foreign	Unfilled Orders Domestic	Unfilled Orders Foreign
Sept.	67	8	402	27
(9 mos.)	512	80	.....	.....
Oct.	96	.....	396	27
Nov.	75	20	389	9
Dec.	63	4	483	7
(year)	746	104	.....	.....
1930				
Jan.	48	.....	577	10
Feb.	64	3	525	8
March	66	2	529	6
April	94	3	461	3
May	56	2	410	9
June	80	1	335	8
July	55	1	284	7
Aug.	73	4	229	5
Sept.	65	.....	170	4
(9 mos.)	601	16	.....	.....

Stokers' Sales Increase

Mechanical stoker sales in September showed the third highest total of the year and a gain over August. However, September's total, mainly in the water-tube division, is below the same month of 1929, by department of commerce reports in the following:

1929	Stokers sold	Fire tube boilers	Water tube boilers
September	155	71	84
(9 mos.)	1,352	544	808
October	178	89	89
November	107	43	64
December	79	30	49
Total (year)	1,716	706	1,010
1930			
January	53	24	29
February	73	26	47
March	89	45	44
April	108	46	62
May	96	41	55
June	151	70	81
July	150	83	67
August	115	61	54
September	128	71	57
(9 mos.)	963	467	496

Steel Castings' Slump Still Unchecked

September new orders for commercial steel castings went to a further low when the sixth successive monthly decline culminated in 49,618 tons booked during the month. Operations were at only 34 per cent of capacity, from reports to the department of commerce:

1929	Total bookings tons	Per cent of capacity	Total production tons	Per cent of capacity
Sept.	86,584	59	106,995	73
(9 mos.)	1,015,651	78	1,017,828	78
Oct.	136,208	94	120,937	83
Nov.	97,888	67	110,297	76
Dec.	90,287	62	106,569	73
(year)	1,340,034	77	1,335,631	78
1930				
Jan.	101,728	70	109,296	76
Feb.	104,727	80	107,897	75
March	122,658	85	113,737	79
April	93,200	65	110,903	77
May	91,307	63	105,242	73
June	61,358	43	90,985	63
July	58,069	40	79,181	55
Aug.	51,464	36	64,403	45
Sept.	49,618	34	62,017	43
(9 mos.)	744,129	57	843,661	65

On Iron and Steel Institute Program

KENELM C. APPLEYARD, who collaborated with Edward O'Toole in the paper on "The Scope and Efficiency of Dry Cleaning of Coals" to be presented on Friday of this week before the American Iron and Steel institute, has been general manager, Birtley Iron Co. Ltd., County Durham, England, since the armistice. It manufactures pneumatic separators for coal cleaning and makes gray iron castings for coal mining apparatus. He served a pupil-apprenticeship with C. A. Parsons & Co. Ltd., rising to production manager at its Gateshead works. He next became affiliated with Sir W. G. Armstrong Whitworth & Co. Ltd., in a similar capacity, remaining until the World war. He also is vice president, Birtley Co. of Western Europe, S. A., Brussels, Belgium, is chairman, Mining and Civil Engineering Contractors Ltd., administrateur, Societe de Foncage de Puits Franco-Belge, Brussels; chairman, North East Coast Engineering Trades Employers' association; chairman, Tyne Engineering Employers' association; chairman, Northern Engineering Employers' Regional committee, and member, management board, Engineering Employers' National federation, Institute of Mining Engineers, British Iron and Steel institute, Society of Chemical Industry, Institute of Fuel and several others.

Kenelm C. Appleyard

Enameled Production Up

After three months' decline, enameled sheet metal ware showed a marked increase in August and made the best total since that of April, according to the following figures from the department of commerce:

In Dozens

1929	Total	White	Grey and Colored
August	385,162	153,969	231,191
	3,097,404	1,340,847	1,756,557
Sept.	338,169	143,505	194,664
October	371,292	158,138	213,154
Nov.	305,714	115,117	190,597
Dec.	391,523	103,404	288,119
Total (year)	4,504,102	1,861,011	2,653,091
1930			
Jan.	332,146	110,758	221,388
Feb.	331,915	120,523	211,392
March	341,372	124,856	216,516
April	318,431	124,562	193,869
May	290,617	114,709	175,908
June	247,861	90,151	157,710
July	213,420	70,718	142,702
August	309,645	89,259	220,386
(8 mos.)	2,385,407	845,536	1,539,871

Industrial Men in the Day's News

J. L. Sussman, Head of Pipe & Tube Products Corp., New York

GRADUATING in law, he never followed the legal profession but more than 20 years ago became identified with pipe and tubing.

WITH his brother and others he founded the Mohegan Tube Co., which later merged with Elyria Iron & Steel Co., the forerunner of Steel & Tubes Inc.

RESIGNING in 1929 as president of Steel & Tubes Inc., he traveled extensively until with R. K. Senter he organized his present company.

—Photo by Blank & Stoller Inc.

ALTHOUGH a 1909 graduate of New York university's law school, J. L. Sussman, one of the founders recently of Pipe & Tube Products Corp., New York, never engaged in law practice. For more than 20 years, however, he has been closely identified with the development of pipe and tube welding, manufacture and distribution. In manufacturing practices and fabrication processes, this product has become highly technical. Mr. Sussman was among the pioneers in acetylene and electric welding as applied to it.

Associated now with R. K. Senter, who for 15 years was a distributor of nonferrous products, including pipe, Mr. Sussman will offer a highly specialized tube engineering service covering both steel and nonferrous, since his company will act in an advisory capacity and will distribute tubing for specialized industrial and commercial purposes.

Mr. Sussman, born in Europe in 1887, was taken to Connecticut in 1889. He lived on a farm until 18 and then entered New York university, where he obtained his law degree. Confronted by an opportunity to enter the pipe and tubing field, he never followed his chosen vocation, but became one of the founders and general manager of Mohegan Tube Co., Long Island City, N. Y., of which his brother, Harrison Sussman, was president, and with which Lyman Bartlett also became affiliated.

Beginning in a small way, the business developed steadily, specializing at first in brass-covered steel bedstead tubing. Soon after 1910 the company started acetylene welding and later manufactured lock joint steel tubing. Electric welding operations were started in 1921 under Lawson patents. Six years later Mohegan Tube Co. with Pontiac Tube Products Co., another subsidiary formed in 1926, were merged with Elyria Iron & Steel Co., Elyria, O., as a result of a suit alleging patent infringements two years previously. The merged interests became Steel & Tubes Inc., with Mr. Sussman president of the New York company and vice president of the Ohio company.

Meanwhile M. H. Sussman had designed and built a 6-inch electric welding machine, probably the largest extant at that time. Demand for line pipe grew steadily and the machine was transferred to Youngstown, O., as the initial unit of the Republic Iron & Steel Co.'s electric weld plant, which company had acquired Steel & Tubes Inc. After Mr. Sussman resigned in 1929 as president of Steel & Tubes Inc., he traveled for several months, and then with Mr. Senter organized Pipe & Tube Products Corp. During the World war Mr. Sussman conducted special research and inspection work for the war department.

C H. LONGFIELD, secretary and director, Lamson & Sessions Co., Cleveland, for the past year, has been elected vice president. He became affiliated with the Kirk-Latty Mfg. Co., Cleveland, in 1914 and four years later was appointed sales manager. When that interest was absorbed by Lamson & Sessions in 1926, Mr. Longfield went along. When I. L. Jennings became vice president and director of sales he was succeeded as manager of sales by Mr. Longfield, who about a year ago was promoted to secretary.

H. H. Winterberg, who succeeds Mr. Longfield as secretary, has been assistant secretary for some time, and also was formerly with Kirk-Latty Mfg. Co., prior to the merger.

H. P. Ladds, formerly assistant sales manager, now named manager of sales, has been with Lamson & Sessions since January when it absorbed Lake Erie Bolt & Nut Co., Cleveland, of which he formerly was sales manager.

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W. S. Stewart, formerly in charge

of Pacific Coast offices, Lincoln Electric Co., Cleveland, has been appointed district manager in charge of Cleveland territory, with offices at the plant, Coit road and Kirby avenue. Mr. Stewart was graduated from Yale university, after which he became affiliated with Lincoln Electric, studying arc welding. He was transferred to automatic arc welding department, where he demonstrated the electronic tornado process of welding for several years. He next was transfered to the sales department and sent to the western coast.

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James E. MacMurray, chairman, Acme Steel Co., Chicago, was guest of honor at an alumnae meeting of Illinois Women's college, Jackson-

James E. Lose

Who, as noted in STEEL of Oct. 16, was recently appointed general superintendent, Homestead, Pa., plant, Carnegie Steel Co.

ville, Ill., Oct. 18, when it was announced that the college is to be named MacMurray College for Women in honor of Senator MacMurray, who has been a benefactor of the institution for many years.

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H. C. Harrison, formerly located at the engineering experiment station, Ohio State university, Roseville, O., has become identified with Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

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O. M. Smith has been made secretary-treasurer, Peerless Supply Co., Tulsa, Okla., manufacturer and distributor of oil field supplies. He succeeds E. A. Shaw.

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Dr. Addams S. McAllister, recently in charge of specification work, bureau of standards, Washington, has been appointed assistant director of the bureau in charge of commercial standardization. He fills the vacancy created Dec. 31, 1929, when R. M. Hudson resigned.

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W. T. Howell, foundry superintendent, Kay-Brunner Steel Products Inc., Los Angeles, has been appointed plant manager.

H. M. Stoneham, sales engineer for several years, is now production manager.

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Joseph H. Frantz, vice chairman of the board, American Rolling Mill Co., Middletown, O., since January, having previously been senior vice president for 16 years, in charge of that company's Columbus, O., blast furnace, was elected a director of Buckeye Steel Castings Co., Columbus, O., Oct. 17, to fill the unexpired term of the late Talfourd P. Linn.

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O. R. Lane, with headquarters in Paul Brown building, St. Louis, has been appointed district sales representative for Missouri, Southern Illinois and Western Kentucky, for Neely Nut & Bolt Co., Pittsburgh.

G. C. Krueger, with headquarters at 6198-123 Wisconsin avenue, Milwaukee, has been appointed sales representative for the Neely company in Wisconsin.

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E. L. Mills, sales manager, Bastian-Blessing Co., Chicago, manufacturer of oxyacetylene welding and cutting equipment, has been elected president of Gas Products association, 608 South Dearborn street, Chicago. He has been chairman of the organization's film committee. Other officers are A. J. Fausek, Modern Engineering Co., and W. H. Ballance, Electrox Co., first and second vice president, respectively.

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William H. Scheer, formerly with Clark Equipment Co., St. Louis, as exclusive representative of Ex-Cell-O Aircraft & Tool Corp., Detroit, now represents the latter company in Cincinnati territory, working out of its Dayton, O., office.

Oscar Lorange, formerly a manufacturers' representative handling Ex-Cell-O Aircraft & Tool Corp.'s products and several other lines of tools, has been placed on the New York sales staff to cover New England territory, which will be handled out of the New York office.

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E. S. Black has been appointed research engineer, Pettibone-Mulliken Co., Chicago. For a number of years he was with American Manganese Steel Co., Chicago Heights, Ill., in the sales department and as assistant to the president. He also was with Page Engineering Co., Chicago, in a like capacity, and for a long period was identified with Hoover & Mason, Chicago, contracting engineers, designing and installing automatic ore handling machinery. Mr. Black was one of the pioneers in introducing manganese steel in rolling mills.

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G. G. Greulich, general manager for the past six years, Rivet-Grip Steel Co., Cleveland, resigned Oct. 15 to become resident partner in the J. Willis Dalsell Co., Grant building, Pittsburgh, building materials.

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Logan T. Johnston has been appointed manager, railroad division, American Rolling Mill Co., Middletown, O., a new division of the sales department combining wrought steel

Chester P. Clingerman

Who, as noted in STEEL of Oct. 16, was recently appointed superintendent, Carrie furnaces, Rankin, Pa., Carnegie Steel Co.

wheels, iron and steel sheets and other products. H. M. Arrick has been made assistant to Mr. Johnston.

Mr. Johnston formerly was with Standard Steel Car Co., Pittsburgh, and more recently has been assistant to the vice president in charge of commercial activities in American Rolling Mills' forged steel wheel division. Mr. Arrick joined the American Rolling Mill organization three years ago, having previously been associated with the operating department, Pennsylvania railroad.

C. G. Bacon has been appointed director of wheel research.

W. B. Quail has been appointed New York office manager, assisted by W. A. Dibblee and E. C. Bray, the latter in the company's Philadelphia office.

Ernest Baxter has been made Chicago district manager but continues in his present capacity as vice presi-

dent, Sheffield Steel Corp., in charge of railroad sales.

F. E. Finley has been named district manager at St. Louis and also will continue to handle Sheffield Steel Corp. business.

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C. F. Neimann, president, Parkersburg Iron & Steel Co., Parkersbug, W. Va., has been made a vice president, Colonial Trust Co., Pittsburgh.

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Henry F. Arnold has resigned as superintendent, effective Dec. 31, 1930, American Tool & Machine Co., Hyde Park, Mass., after 63 years of service. He started to work at the age of 17 and 41 years ago reached the superintendency through successive promotions. He will continue as a director.

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William A. Boesche was elected president of the National Association of Ornamental Iron, Bronze and Wire Manufacturers at the twenty-third annual meeting held at Baltimore last week. Other officers elected were: First vice president, Frank L. Suhre, Ornamental Wire & Iron Co., St. Louis; second vice president, Robert R. Korb, Audubon Wire Cloth Co., Audubon, N. J.; third vice president, Arthur S. Hughes, Hughes & Keenan Co., Mansfield, O.; fourth vice president, F. Moore, Moore Mfg. Co., Greensburg, Pa.; treasurer, William K. Ross; executive secretary, Thomas R. Charshee.

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Don L. Brown, vice president, Pratt & Whitney Aircraft Co., Hartford, Conn., has been elected president, to succeed Frederick B. Rentschler, now chairman of the board.

George J. Mead, vice president in charge of engineering, has been made head of the new experimental research division, United Aircraft & Transport Corp., the holding company for both Pratt & Whitney Aircraft Co. and Chance Vought Corp., subsidiaries. Mr. Mead also is chairman of the executive committee of the engine manufacturing company.

Charles W. Deeds, secretary-treasurer, United Aircraft & Transport Corp. and Pratt & Whitney Aircraft Co., was elected vice president of the engine company. Mr. Deeds continues as secretary of Pratt & Whitney and as secretary-treasurer of the holding company.

J. F. McCarthy was elected treasurer, Pratt & Whitney Aircraft Co.

Worth Sheet Mill Ready

Philadelphia—The new sheet jobbing mill of the Worth Steel Co., Claymont, Del., has been turned over and is expected to be placed in production in the next few weeks.

Obituaries

FRANK Baackes, 67, a vice president of the American Steel & Wire Co., at Chicago, died at his home in that city Oct. 18, after an illness of several months. He was born in St. Teonis, Germany, March 9, 1863, and was educated in the public schools there and in the high school at Crefeld, Germany. He removed to this country and started in 1889 with the H. P. Nail Co., Cleveland.

About five years later he went to Beaver Falls, Pa., to erect a wire plant for Hartman Steel Co., and late in 1895 organized Salem Wire

Frank Baackes

Nail Co., Salem, O., remaining with it as superintendent and general manager until its absorption by American Steel & Wire Co. of Illinois, in 1897, when he became the latter's general manager.

In 1899 when American Steel & Wire Co. of New Jersey, was organized, Mr. Baackes became general superintendent and, in June, 1900 was appointed general sales agent. Later he was elected vice president and general sales agent. In May of this year he also was made assistant to the president.

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Eugene F. Bowen, 75, secretary and treasurer, Allen Wrench & Tool Co., Providence, R. I., died recently.

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John Chapman, plant manager, Whitney Mfg. Co., Hartford, Conn., died recently. Prior to his affiliation with the Whitney Mfg. Co. he was associated with Colt's Patent Fire Arms Mfg. Co. and the Pratt & Whitney Co., both of Hartford.

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Philip H. Patriarche, 79, founder of Patriarche & Bell, New York, steel merchants, died at his home in Orange, N. J., Oct. 17.

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Warren H. Dunning, 70, for many years vice president, Dover Stamping & Mfg. Co., Cambridge, Mass., died Oct. 20 at Cambridge, Mass.

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Charles F. Lewis, 77, partner for 20 years in Walter P. Rice Engineering Co., Cleveland, died Oct. 13.

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Harding Allen, 62, pioneer machine tool builder of New England, died Oct. 11 at Barre, Mass. He was owner of Charles G. Allen Mfg. Co.

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John K. Morris, 48, president, Atwell Steel Products Co., Long Island City, N. Y., died of heart failure Oct. 18, while enroute from Staunton, Va., to New York.

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John E. Gray, recently division freight agent and head of the traffic department, American Steel & Wire Co., Pittsburgh, died at his home there Oct. 16. He had been connected with that department for 31 years.

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John C. Lane, retired banker and manufacturer of Holly, Mich., died in his Detroit home Oct. 2. Mr. Lane founded the Cyclone Woven Wire Fence Co., Holly, and was president of the Citizens Savings bank. He retired about 20 years ago.

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James Ellis, 70, in charge of research and development, William Cummings & Co. Ltd., Glasgow, Scotland, and founder of the Institute of British Foundrymen, died at his home in London, Eng., Sept. 27.

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Leander S. Heald, 94, for many years owner of Heald Machine Co. when it was located in Barre, Mass., died Oct. 12 at his Worcester, Mass. home. His father founded the Heald Machine Co., of Worcester. He succeeded his father and was in turn succeeded by his son, James N. Heald, president for many years.

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Dr. Herbert H. Dow, 64, president, Dow Chemical Co., Midland, Mich., died Oct. 15 at Rochester, Minn. He founded the Midland Chemical Co., forerunner of the present concern, in 1890. For many years he was consultant for the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., and in 1917 he was appointed to the advisory committee of the Council for National Defense.

Here and There in Industry

TREADWELL ENGINEERING CO., Easton, Pa., as a result of having booked large orders for rolling mills and miscellaneous steel works equipment is more active than ever in its history. It is operating its enlarged shops at 100 per cent of rated capacity, with night and day shifts. The company has added a balcony 40 x 250 feet in its main machine shop, in which it has installed a new machine department for light work and has purchased about $100,000 worth of machine tools, now in operation. The company also is making other improvements, including an oil-fired annealing furnace in its steel castings heat treatment department. It has added a new pattern storage building, 50 x 220 feet.

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Hoskins Mfg. Co., Detroit, manufacturer of resistance wire, electric furnaces and pyrometers, has appointed E. A. Wilcox, 273 Seventh street, San Francisco, its representative in California.

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Pratt & Whitney Co., Hartford, Conn., has purchased the John-Sons Gauge Works, manufacturers of thread gaging and measuring tools, Hartford. Equipment and stock of the merged firm has been moved to the Pratt & Whitney plant, Capitol avenue, Hartford. C. M. Pond, manager of the small tools and gage division, will have supervision of the enlarged department.

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Naylor Pipe Co., Chicago, announces that its southwestern district sales office at Houston, Tex., has been moved to 402 Petroleum building, Fort Worth, Tex. E. C. Kirby is in charge.

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E. D. Giberson & Co. Inc., 40 Rector street, New York, has been appointed district sales representative of the Wrought Iron Co. of America, to cover the territories formerly handled by the company's New York and Boston offices.

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Houston Car Wheel & Machine Co., Houston, Tex., has added a ship repairing division and shop in charge of J. W. Killough. The company also recently entered the oil field equipment manufacturing business. W. A. Raymond is general manager.

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Chicago Bridge & Iron Works, Chicago, is successful bidder for furnishing and installing a 1,500,000-gallon elevated steel storage tank for the Milwaukee municipal waterworks system, at Hawley road and Martin drive, at $99,000. A similar installation was made last spring in Jackson Park, Milwaukee, the successful bid at that time being $111,000. It is explained that cost of materials has declined sufficiently to effect the saving on the new Martin drive project.

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Canada Wire & Cable Co. Ltd., Montreal, Que., has commenced excavating for its rod mill and wire drawing plant in Montreal, adjacent to the refinery of the Canadian Copper Refiners Ltd. Canadian Vickers Ltd. has been awarded the contract for the steel work.

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General Fireproofing Co., Youngstown, O., has booked an order from the city hospital at Los Angeles for steel case equipment to cost $350,000. It will require a year to complete the order, according to George C. Brainard, president. The plant now is operating 75 per cent of capacity.

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Falk Corp., Milwaukee, has taken a $100,000 supplemental order for two ship reduction gears from Bethlehem Shipbuilding Corp. Four gears were previously ordered and the total order amounts to about $350,000. The gears weigh about 140,000 pounds and will be installed in three freight and passenger ships for the Matson line.

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Ex-Cell-O Aircraft & Tool Corp., Detroit, has reorganized its New England sales district, which hereafter will be handled out of its New York office. Oscar Lorange, formerly a manufacturer's representative handling this and several other lines, has been placed on the New York sales staff and is covering New England territory.

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Bosshardt Steel Corp., Canton, O., recently incorporated with 250 shares no par value, plans to take over the plant formerly occupied by the Canton Steel Foundry Co. at Canton and has started engineering work to prepare the plant for use. Operation is planned for early in 1931. The new company is incorporated by E. A. McCusky, Albert B. Arbaugh and M. F. Berberich.

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Dobbie Foundry & Machine Co., Niagara Falls, N. Y., has purchased manufacturing rights on the Morgan cupola charger and cupola charging equipment from the Chisholm-Moore Hoist Corp., Tonawanda, N. Y. W. H. Morgan will be in charge of the equipment division. Dobbie Foundry & Machine Co. has made contractors' equipment, castings and structural steel products for a number of years and is equipped to build machinery of the type of the Morgan cupola charger.

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Line Material Co., South Milwaukee, Wis., W. D. Kyle president, manufacturer of street lighting

Fairchild Aerial Surveys Inc.

"GROUP PLAN" BUILDINGS ARE INNOVATION

The new factory colony in Oakley, a suburb of Cincinnati, is unique as group plans heretofore have been associated mainly with the location and construction of public buildings. A central power plant supplies heat, light, compressed air and power to the colony of enterprising machine tool builders. The plant of the Cincinnati Milling Machine Co. is seen in the foreground, and others are Cincinnati Bickford Tool Co., Cincinnati Planer Co., and Cincinnati Grinders Inc.

equipment and pole line hardware, is building a plant at Birmingham, Ala., with 10,000 square feet of floor space, with departments for pickling, galvanizing and assembly.

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Moore Steam Turbine Co., Wellsville, N. Y., has taken a contract for three turbo-generators for the naval air stations at Pensacola, Fla., Great Lakes, Ill.; and Portsmouth, N. H., at $51,912 for the three units.

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American Hoist & Derrick Co., St. Paul, announces removal of its Dayton, O., office to Indianapolis, at 703 New City Trust building. I. R. Bailey, and William M. Schoen, who has been stationed at Indianapolis for many years, will be at the new office.

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Alloy Welding & Mfg. Co., Pittsburgh, has been formed to take over the Pittsburgh Producers Supply Co. of that city. The principal activity will continue to be fabricating of corrosion and heat resisting steels by welding. This includes special assemblies and units for installation in chemical plants, oil refineries, pulp mills, steel plants, dairy industries, food products plants and similar users. Officers of the new company are: President, Reeve H. Banks; vice president, Clifford J. Francis; secretary and treasurer, W. L. James.

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Chevrolet Motor Co., Detroit, has bought the Indianapolis plant of the Martin Parry Corp. and will use it for production of commercial automotive bodies. The plant includes 40 acres, with 550,000 square feet of floor space and 150,000 square feet of lumber storage space. The Martin Parry Co. will continue to operate its plants at York, Pa., and South Kearny, N. J.

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Allis-Chalmers Mfg. Co., Milwaukee, has taken an order from West Virginia Hydro Electric Co., a subsidiary of the Union Carbide & Carbon Corp., New York, covering ten large power transformers, amounting to approximately $500,000. This is the second order recently received by Allis-Chalmers from this company, the previous order covering two welded steel surface condensers for use with 30,000-kilovolt ampere steam turbines.

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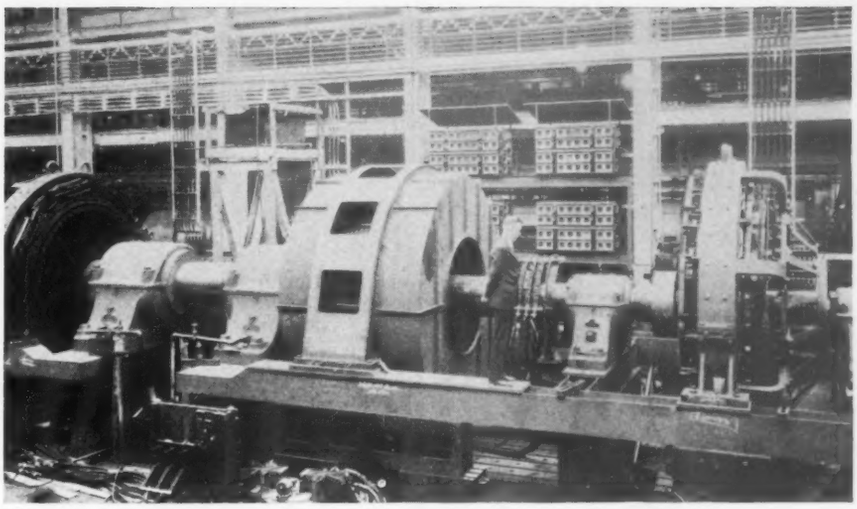
Tucker Foundry Co., Medina, N. Y., has been purchased by the Buffalo Pipe & Foundry Co., formed at Buffalo a few months ago to produce cast iron pipe and fittings. The Medina plant will be operated as a branch of the Buffalo corporation, which will have its principal production in a Buffalo factory building which it is now remodeling for that purpose. Frank B. Baird is president of the Buffalo corporation. The Medina plant was established nearly 40 years ago and has operated continuously since that time.



LARGEST POWER GENERATOR FOR BLOOMING MILL

The largest motor generator set ever built for supplying power for motors driving a blooming mill is being tested in Westinghouse Electric & Mfg. Co.'s East Pittsburgh, Pa., works. This 9000 kilowatt set consists of three 3000 kilowatt generators and a 6500-horsepower induction motor, and it will furnish the power for two 5000-horsepower, double-unit reversing motors for twin drive. The flywheel of this set is 15 feet in diameter, and weighs 180,000 pounds

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Adirondack Steel Foundries Corp., Watervliet, N. Y., has opened a district sales office at room 426 Park Square building, Boston, in charge of W. W. Weller, New England sales manager.

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American MonoRail Co., Cleveland, has opened a sales office at 7338 Woodward avenue, Detroit, in charge of S. J. Woodworth.

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Taylor-Wharton Iron & Steel Co., High Bridge, N. J., has engaged the National Engineering Co. to install a sand handling and reconditioning system to serve its steel foundries and core rooms at High Bridge.

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General Brass Foundry Co., Newark, N. J., Joseph B. Meier, president, has bought the plant and business of the William J. Sweet Foundry Co., Irvington, N. J. The plant will be devoted to production of nonferrous castings.

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Michigan Steel Corp., Detroit, has completed installation of automatic coal handling equipment and gas producers at its plant at Ecorse, Mich., and placed it in operation. Hand labor is eliminated in firing the heating furnaces and automatic temperature control regulators govern operation.

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National Carbon Co. Inc., Cleveland, through its carbon sales division, will take over Nov. 1 the sale of Gredag lubricants manufactured by the Acheson Graphite Corp., a subsidiary of the Union Carbide & Carbon Corp. Sales and technical service will be available at branch offices and service plants of the carbon sales division at New York, Pittsburgh, Birmingham, Chicago and San Francisco.

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Fernholtz Machinery Mfg. Co. Ltd., Los Angeles, has been awarded a contract by Goldfield Consolidated Mines Exploration Co., San Francisco, for construction and equipment of the first of a series of plants for manufacture of fuel briquets. It will be located at Wilmington, Calif., and will cost about $1,000,000. The Fernholtz company has a foundry, pattern and machine shops and engineering force and manufactures machinery for briquet, ceramic, refractory and clay products. Affiliation recently has been made with Pacific Iron & Steel Co., Los Angeles, by which both companies will use the facilities of both plants to make possible better service.

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Collingwood Shipyard Ltd., Toronto, Ont., has launched a pontoon lock gate lifter, which has been under construction for a year. It was built to the order of the Dominion department of railways and canals. It is 99 feet long, 66 feet wide and 26 feet deep and is believed to have the greatest lifting power of any floating or fixed crane in existence. Its special use is to lift the gates in the new Welland canal, the largest of which weighs about 500 tons. The lifter is constructed of steel, and the housing and control mechanism is electrically equipped throughout. The power plant is an oil burning Scotch marine boiler with a working pressure of 160 pounds of steam.

Wesley Bowman Studio

Steel Angles from Chicago

CHICAGO

MINOR waves of pessimism, alternating with glimmerings of a brighter outlook, have added further to uncertainties about early recovery from the slump. What the western industry seems to need most is good news from the farm implement makers, and from the railroads about new freight cars for next year.

There are those who say powerful forces now are working silently on a turn for the better after the close of the year. If so, the silence part of it is more striking than anything else, according to the views of others.

Implement and tractor business is spotty and immersed in inventory perplexities. The few concerns that are operating on any scale at all are doing so on a forced draft basis.

General American Is Only Car Builder Now Active

Freight and passenger car markets are lifeless at the moment. All the western car building shops are down, with the exception of General American Tank Car Corp., which at East Chicago is working on an assembly of cars for leasing, and at two of its eastern plants on Chesapeake & Ohio and miscellaneous work.

Michigan City, Ind., works of Pullman has been down for several weeks after operating for more than a year at near capacity. Pullman will build 500 box cars for Chicago Great Western, and has some car repair work to do at West Pullman, Ill. Bettendorf Co., whose program held out longer than had been expected, was forced to close its car building and repair division three weeks ago.

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What the next move of the western railroads will be is of much interest. Virtually no prospects apyear now for new rolling equipment, except that the Santa Fe is reported to be shaping up an important car inquiry. The western car shops have had poor prospects before, but not since 1921 has the number of inquiries been so low. Even in 1928, the most recent depressed year, the freight car building industry was not quite so flat.

The problem of empty cars and surplus motive power now clouds the outlook in the equipment markets. Parking space is becoming limited, with side-tracks, switches and yards filling with empties released and idle from the grain crop movement.

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Grain shipments, due largely to the wheat market, have been a great disappointment to the western carriers. Wheat prices, which last week were the lowest since 1906, give no sign of important recovery soon. The Russian scare is over, with hedges covered. Only one or two western roads found their grain movement satisfactory.

Chicago & North Western, the largest western carrier of iron ore, reports its 1930 ore shipments, to Oct. 15, 14 per cent under last year's total.

Nevertheless, western car loadings are improving, even though suffering by comparison with last year. Several of the roads, notably the Rock Island, have been showing loading reports that offer encouragement.

View Stock Market as Most Reliable Indicator

To what extent the long lines of empties, many of them new cars, are being used by the roads to replace worn out or bad order cars is uncertain. Opinion is that a great many bad order cars thus are being replaced. Many views are that the prospects for the coming season's car building depend more on the stock market than loading reports and crop prices.

The roads apparently are not to be hurried by indications of stiffened steel prices. A year ago, 15,000 to 20,000 cars actually were in the market, while prospects were that 20,000 additional would be on active inquiry within 90 days. At that time western car shops were about 65 per cent engaged.

Rail mills in the district were humming at 75 per cent. For the last two months, the rail mills of Illinois Steel Co. and Inland Steel Co. have been rolling largely structural material rather than rails. This week, however, the local mills began on the rails recently let that must be turned out for one or two roads in early December.

This puts the district's rail mills barely at 30 per cent. With 25,000 tons of track fastenings out, and about 25,000 tons more in prospect, it is indicated departments engaged in rolling track material soon will have to speed up.

More Western Railroads Are Building Own Cars

More than 25,000 cars were let for building in western shops for the 1930 delivery season. It was regarded as a poor year, and builders expect that the next four to five years will disclose an average for the period higher than that. It is estimated that about 10 per cent of the cars ordered by carriers in the West was built in the latter's own shops. A tendency toward increased building of cars by the roads themselves is noted.

Larger freight car orders placed with western shops alone included Rock Island, 4500; Pere Mar-

quette, 3750; Missouri Pacific, 2250; American Refrigerator Transit, 2000; St. Paul, 2100; Louisville & Nashville, 1000; Burlington, 500; Chesapeake & Ohio, 500; Soo Line, 400; and Southern Pacific 300 cars.

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Western railroad shops are falling in line for operations again after shutdowns ranging from one to three months. Chicago & North Western and Rock Island shops are to resume early next month. The latter's shops were on full for a few weeks in September, but have been idle this month. The St. Paul is taking on men at its West Milwaukee, Wis., shops, and will be in full operation by the latter part of this month. Orders have been received to go ahead with the original production program announced for the shops earlier in the year.

Chicago & Alton shops at Bloomington, Ill., will be on full some time next month. The shops, down since July, will start soon with 600 employes and gradually increase, but will operate only five days a week. Some reports are that Illinois Central soon will increase its shop work.

Inventories of Implement Makers Are Below 1921

Better times are in prospect for the farm implement industry, in the opinion of leading manufacturers, despite the fact that a number have full warehouses—the heaviest finished stocks in three years. Nevertheless, the industry is less depressed than in 1921, when inventories of both finished products and materials for production were much heavier. It is felt also that the implement industry has been less affected by general economic conditions than a number of industrial groups.

Implement makers see favorable signs for expansion of markets in the normal development of power equipment. Research and educational work is being extended. It is felt the farmer is becoming more alert to each step in power equipment advances, and the need that he use them to cut costs and save labor.

That the farmer is getting more for his money in the equipment he buys now also is evident. Processing and treatment of steels, the special steels and alloys, and improved assembly by the implement maker have added sturdiness and life to the new equipment turnout.

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Advance information on 1931 tractor and implement models discloses marked trend toward special alloy steels, particularly in tractors, and elimination of wood parts in favor of all-steel wheels and other accessories.

Oliver Farm Equipment Co. is going at capacity, seven days, at the Hart Parr division, Charles City, Iowa, on Russian tractor business, but is virtually down at South Bend. Caterpillar Tractor Co. is going full at Peoria, also completing work on soviet and other foreign business.

Deere & Co. and J. I. Case are operating about three days at Moline, Waterloo, Iowa, and Racine. International Harvester's Milwaukee plant for several weeks had been running near capacity, but is slowing down. International Harvester's other plants are on a schedule of about three days. Last month, Deere's Waterloo plant was on schedule of three days every other week. Deere & Co. recently sent out specifications for much special steel material for 1931.

Middle West Watches South American Revolts

South American business depression and revolts have interfered with exports, but some of the markets remain. Gleaner Harvester Combine Corp., Independence, Mo., one of the newer equipment manufacturers, has met with success in foreign fields. Last year, this company signed a long-term contract for the sale of the company's product in Argentina through America Sociedad Anonima Argentina, of Buenos Aires, calling for 600 machines in 1930, 800 in 1931, 1000 in 1932, and 1200 in 1933.

◆

Ford's plant at Cork, Ireland, is cutting into the American tractor industry's domestic and export markets, although the Cork plant was shut down during July and August, and production still is not far enough along to affect exports now.

Figures just released by the Irish government at Dublin reveal that the shipments of tractors and tractor parts from Ford's factory at Cork in the seven months ended July 31 totaled $11,000,000, comprising 13,552 tractors. Almost half went to the United States. These tractors enter the United States duty free under the tariff law which exempts agricultural implements from import charges. Of the remainder, Australia, with 947, was the next largest purchaser.

Output of industrial tractors during this period was 1661, most of which went to Great Britain, France, New Zealand and Japan. Only five went to the United States. Tractor parts exported were valued at more than $3,000,000. Russia was the largest buyer, taking nearly two-thirds of the total. The remainder went to the following countries in the order of their values: United States, Great Britain, Italy, Germany and Turkey.

Among new implement offerings is a general purpose farm tractor with the feature of variable wheel spacing, which is being marketed by J. I. Case Co., Racine, Wis. The rear wheels can be set out from the standard 48-inch tread for plowing purposes to various treads up to 84 inches for row crop planting, cultivating and other work.

These models will sell for $1000 each, and production already has been started. Officials hesitate to estimate the possibilities as to increased sales, and about what volume production can be set for the model next year.

◆

Sensitiveness of the local merchant pig iron market to conditions surrounding the shipment of eastern iron to this district by Great Lakes boats is disclosed vividly by market caprices of the last few weeks.

When the prices at which boat iron was being moved westward became unattractive to eastern interests for further shipment this year, the Chicago-Milwaukee market immediately reflected the changed condition. The market began to stiffen perceptibly, and as the season advanced sufficiently to indicate that little time remained for further boat movement to Chicago, the market actually took on firmness at $17.50.

The Chicago furnace market was more psychologically attuned to the influences of eastern iron shipments this season than usual. Though small in comparison with western merchant iron absorption, the boat shipments throughout most of the spring and summer season constituted a specter with which furnace interests reckoned. The quick adjustment five weeks ago to a more stable price footing gave an unusual late-season twist to a dragging market.

Stiffer Price Quickens Buying of Pig Iron

Encouragement is taken from the fact that pig iron buying quickened following the strengthening of the market. More than 125,000 tons has been placed on furnace books in the last six weeks for the remainder of the year, and recently first quarter inquiry and buying has been active.

Much of this has been "calendar buying," customary dates for appraisal and replenishment of stocks, but the interest shown has been refreshing. So far the domestic furnace and stove manufacturers, industrial equipment concerns, and scattered jobbing foundries and farm implement works have furnished the bulk of fresh orders.

Probabilities are that much of the huge inquiry for tank plates from

(*Concluded on Page* 51)

EDITORIAL

A Fine Opportunity for Group Market Work!

FOR many years machine tool builders have discussed the problem of obsolete equipment. Everyone who is familiar with the manufacturing facilities of the average production establishment knows that manufacturers are prone to hold on to machinery long after it has ceased to be efficient. It has been argued time and time again that the operation of such obsolete equipment is uneconomical, and that in many cases new machines can be substituted which will pay for themselves in a surprisingly short time.

These arguments have been presented to the users of machinery at every opportunity, but without marked result; the amount of obsolete equipment still remained high. This was the situation last spring when the members of the National Machine Tool Builders' association, in convention at Columbus, O., authorized a study of the market represented in the replacement of obsolete machine tools.

A committee, which has been canvassing the situation, reported at last week's meeting of the association at Lenox, Mass., that the potential market is conservatively estimated at $400,000,000. On the strength of this study, the association voted to proceed with a campaign to capitalize this market. Funds have been appropriated to carry on the work and within a short time a systematic plan of market development will be launched.

Market Data Essential To Selling

This is a significant movement, not only because it is an example of going at a difficult problem in the right way, but because it is another illustration of the growing realization among industrial leaders of the importance of cultivating markets systematically. If the amount of money wasted annually because of the lack of necessary knowledge of markets were now available to relieve suffering caused by the present depression, the approaching winter would be robbed of many of its threatened hardships. It is doubtful if 10 per cent of the sales effort throughout American industry is based on adequate market knowledge.

It is time, of course, that many of the large industrial companies recognize the necessity of reliable market information and that in many cases elaborate studies are made before major sales companies are launched. But the companies of moderate and small size, with few exceptions, either underestimate the value of market surveys or neglect to use them. This is understandable because the smaller concerns usually are not so equipped.

For this reason the idea of conducting a market analysis under the auspices of a group of interested manufacturers ought to appeal strongly to the managements of individual companies. Under this plan the basic information is procured by an agency working for the group as a whole. The cost to the individual company is only a small fraction of what it would be if each concern attempted to gather the facts independently.

Survey Foundation for Sales Structure

But the presidents and sales managers of the companies comprising a group which studies market possibilities in this way should not make the mistake of thinking that the group's survey is all that is necessary to unlock the doors of the potential market. The group's studies are merely a foundation, upon which each company must build its own merchandising structure. While all companies will start with the same basic information, probably no two of them will utilize it in the same way. Each company's problem is different, and each should adapt the results of the group's survey to its peculiar needs.

What the machine tool builders are attempting has been tried in part by a number of other groups, notably fabricators of structural steel, producers of steel sheets, and various foundrymen. Unfortunately however none of these associations has enjoyed a clear-cut opportunity for market promotion. Almost always some factor, over which the groups had no control, has interfered with the effectiveness of their work.

No such restrictions are likely to handicap the machine tool builders. Their association is truly representative of the machine tool industry. It has the authority, the financial strength and the ability to do the job thoroughly. Therefore all industry will watch the campaign with interest, feeling that it is in reality a test case of the value of systematic market study and development.

Because of its significance in this respect, it is hoped that nothing will be left undone by the machine tool builders to make their program a complete success. Should group marketing cultivation prove effective for machinery builders, it will be taken up by other organizations. The plan is on trial. It merits success.

THE BUSINESS TREND

Was September as Bad as Represented?

BUSINESS sentiment has regained a degree of composure during the past week. Uncertainty still prevails, but as the remaining statistics for September have appeared, much of the gloom caused by the low production of steel ingots and pig iron has been dispelled. Several barometers, figures for which have been released in the past few days, are mildly encouraging. Meantime, the stock market has been a depressing influence. Likewise earnings statements furnish a disappointing spectacle to the thousands of American industrial leaders who are eagerly awaiting a respite from discouraging business news.

Among the factors on the favorable side are orders for machine tools, steel sheets and foundry equipment; building awards; and the volume of revenue freight. After several months of tantalizing behavior, the National Machine Tool Builders' association's index of machine tool orders finally turned upward in September. The index of bookings of foundry equipment, which rose prematurely in June and then slumped in July and August, turned in September. Orders for sheet steel received by independent producers jumped 43 per cent in September. Output increased slightly, shipments declined moderately and stocks mounted a trifle. The monthly story of refined copper also furnishes a measure of comfort. Stocks again increased, but shipments increased and production was lower—thus indicating that the trend is in the direction which eventually will bring a reduction in abnormally large stocks.

Building construction, which has been so disappointing, registered a slight improvement in September, due to a belated expansion in residential work. Freight traffic, which had been slightly erratic in September, showed an encouraging gain in the first week of October.

While these more or less promising indicators have been appearing, the commodity price situation has remained unchanged. The various indices have shifted upward or downward in disconcerting confusion. Even the prices of agricultural products, which once appeared to to be strengthening, now show a lack of uniformity in trend. On the whole, however, wholesale prices seem to be veering toward stability rather than away from it. STEEL's composite of steel and iron products continues to drop, due to further belated revisions in pig iron. Prices of finished steel are staying put in an encouraging manner.

The Barometer of Business

Industrial Indicators

	September 1930	August 1930	September 1929
Pig iron output (Daily average, tons)	75,893	81,585	116,548
Machine tool Index	113.6	110.2	265.8
Unfilled orders (tons)	3,424,338	3,580,204	3,902,581
Ingot output (Daily average, tons)	110,307	119,050	181,119
Dodge Bldg., awards in 37 states (sq. ft.)	41,193,300	39,932,500	59,870,000
Automobile output	226,361	232,838	429,729
Coal output, tons	38,580,000	35,661,000	45,110,000
Business failures; number	1,963	1,913	1,563
Business failures; liabilities	$46,947,021	$49,180,000	$34,120,000
Cement production, Bbls.	16,124,000	17,821,000	17,223,000
Cotton consumption, bales	000,000	352,335	545,649
Car loadings (weekly average)	931,310	934,073	1,135,572

Foreign Trade

	September 1930	August 1930	September 1929
Exports	$318,000,000	$300,000,000	$437,163,000
Imports	$227,000,000	$217,000,000	$351,304,000
Gold exports	$11,135,000	$39,332,000	$1,205,000
Gold imports	$13,671,000	$19,714,000	$18,781,000

Foreign Exchange

	Normal	September 1930	August 1930	September 1929
Sterling	$4.867	$4.86	$4.871	$4.844
Francs	3.918c	3.925c	3.934c	3.912c
Lira	5.260c	5.232c	5.239c	5.227c
Marks	23.830c	23.825c	23.893c	23.800c

Financial Indicators

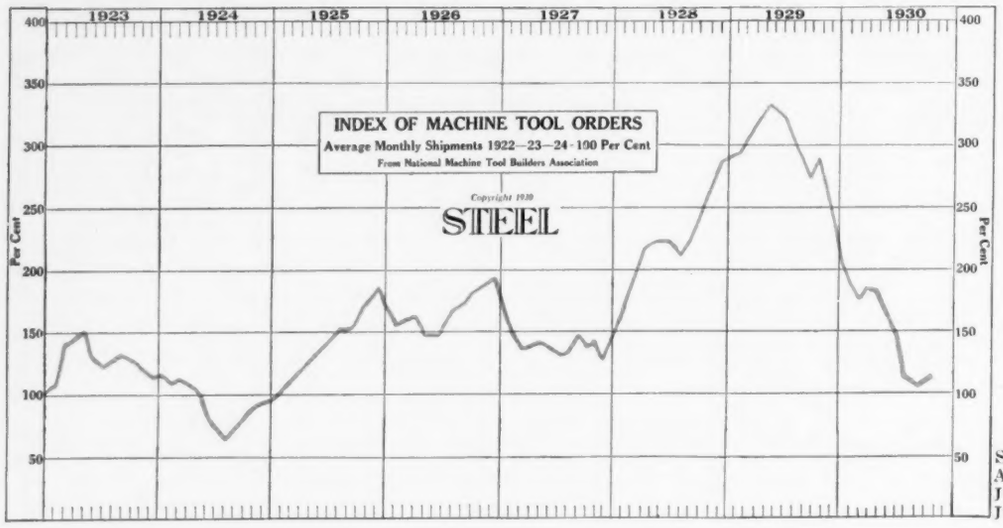
	September 1930	August 1930	September 1929
25 industrial stocks	219.73	294.14	450.50
25 Rail stocks	106.55	112.34	151.60
40 Bonds	88.49	88.68	85.80
Bank clearings (000 omitted)	$39,911,018	$38,390,582	$57,485,019
Commercial paper rate (N. Y., per cent)	3	3	6.25
*Commercial loans (000 omitted)	$8,446,000	$8,472,000	$9,518,000
Federal Reserve ratio, per cent	80.8	83.1	73.2
Railroad earnings	$95,603,922	$82,750,153	$141,758,499
Stock sales, N. Y. stock exchange	53,545,145	39,869,500	100,056,120
Bond sales, par value	$226,411,100	$169,713,700	$214,807,000

*Leading member banks Federal Reserve System.

**August, July and August, respectively.

Commodity Prices

	Sept., 1930	Aug., 1930	Sept., 1929	Monthly average 1913
STEEL's composite average of 14 iron and steel prices	$32.65	$32.99	$36.50	$26.32
Bradstreet's index	$10.30	$10.43	$13.70	.....
Wheat, cash (bushel)	$1.01	$1.03	$1.41	92c
Corn, cash (bushel)	$1.09	$1.16	$1.19	51c
Petroleum, crude (Bbl.)	$1.18	$1.18	$1.40	$2.50



	1930	1929
September	113.6	265.8
August	110.2	286.1
July	117.3	294.8
June	146.7	315.2

Index of Machine Tool Orders Turns Upward in September

After several months of uncertainty in which it was apparent a change in the index of machine tool orders was imminent, the expected turn has arrived. The three month's moving average, compiled by the National Machine Tool Builders' association, stands at 113.6 for September, an increase from 110.2 for August. Some of the elation which might be justified by the upturn in the index is dimmed by the fact that the volume of inquiries, which was most promising a month or more ago, has diminished to a disappointing level. Apparently intended purchases have been held in obeyance, pending a clarification of the general business situation.

Refined Copper Shipments Gain, Production Declines, but Stocks Still Grow

Daily shipments of refined copper in September increased for the first time since May, daily output declined to the lowest rate since August, 1927, and notwithstanding these readjustments stocks at the end of the month increased to a point which is the largest in over nine years. September stocks were equivalent to 105 days' shipments at the September rate. It will be recalled that stocks have increased steadily since October, 1929. Production in September totaled 116,004 tons, against 120,778 in August. Shipments were 103,042, compared with 95,129 in August. Stocks totaled 360,650 tons, an increase of 12,962 tons over the total for August.

Stocks

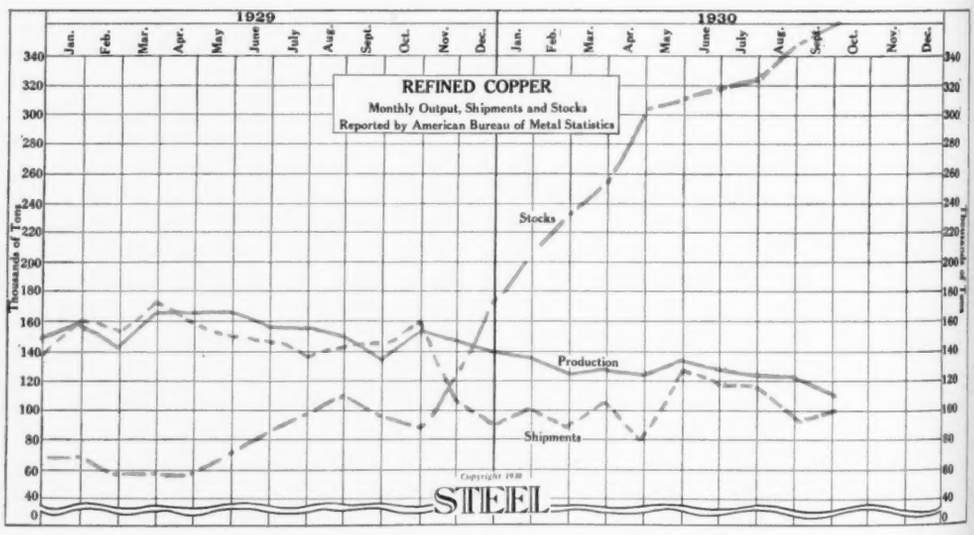
September, 1930	360,650
August, 1930	347,688
September, 1929	94,751

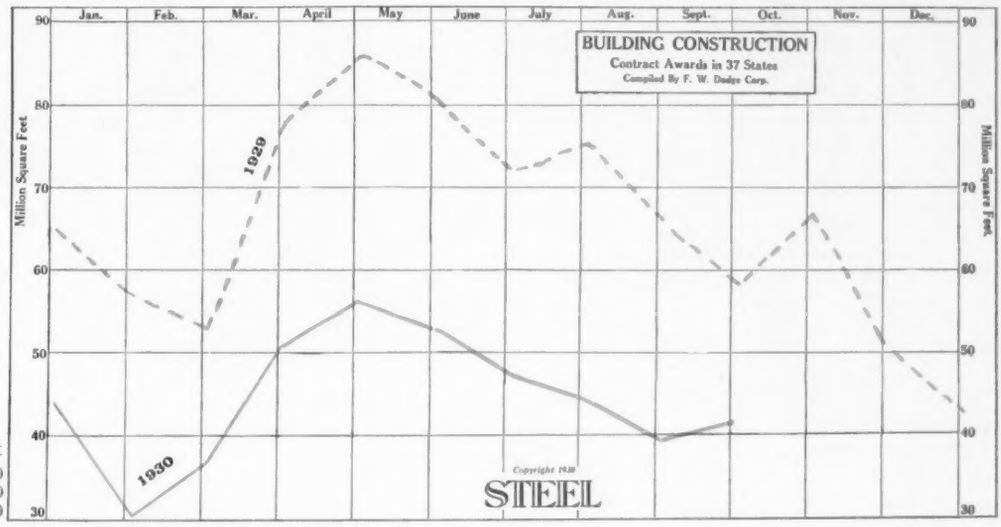
Production

September, 1930	116,004
August, 1930	120,778
September, 1929	134,343

Shipments

September, 1930	103,042
August, 1930	95,129
September, 1929	143,964




BUILDING CONSTRUCTION
Contract Awards in 37 States
Compiled By F. W. Dodge Corp.
Jan. Feb. Mar. April May June July Aug. Sept. Oct. Nov. Dec.
Million Square Feet
90 80 70 60 50 40 30
1929
1930
Copyright 1930
STEEL

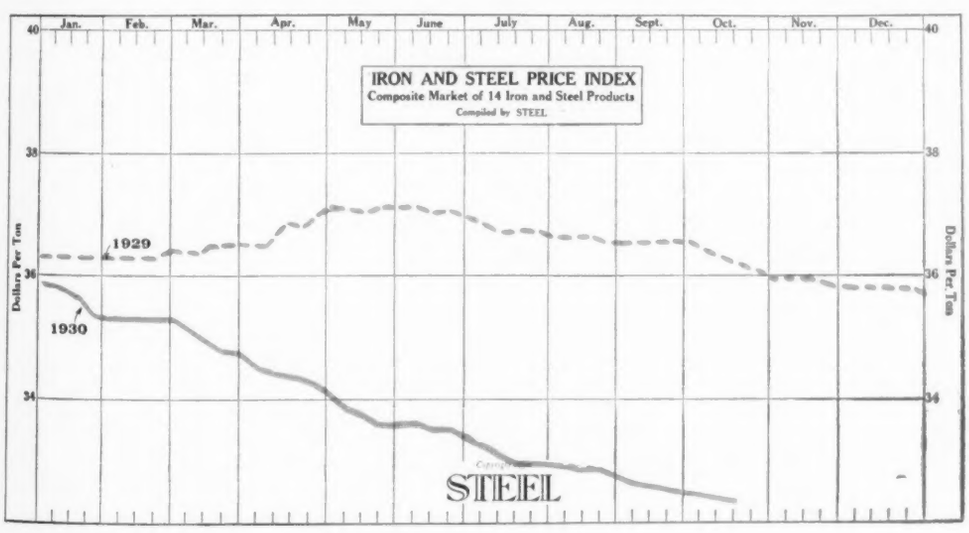
Square Feet	
September, 1930	41,193,300
August, 1930	39,932,500
September, 1929	59,870,000

Building Awards in September Rise in Belated Seasonal Expansion

The building industry, upon which high hopes for expansion were expressed early this year, thus far has proved a disappointment in that the volume of construction has remained consistently far below 1929 figures. A small degree of comfort is afforded by recent reports that a belated increase in the construction of residences is appearing. Awards reported by the F. W. Dodge Corp. in 37 eastern states in September totaled 41,193,300 square feet, a slight gain over the 39,932,500 square feet reported in the previous month. Last year a considerable drop in awards occurred in September, and a gain was registered in October, after which the volume declined until February.

Steel Prices Show Signs of Stability, But Composite Is Lower

The price situation still is uncertain, although the steadiness of finished steel quotations is reassuring. Steel's composite of fourteen steel and iron products, which averaged $32.65 for the month of September, has dropped to $32.24 as of Oct. 15. Recent declines have been caused by further downward revisions in pig iron and by a cut of $5 per ton in tin plate. Pig iron prices at Buffalo, Pittsburgh, Philadelphia and Youngstown dropped belatedly, after Chicago quotations had declined. Steel bars, plates and shapes have exhibited greater qualities of stability than at any period in more than a year of steady decline. The composite now stands at its lowest point in 10 years.


IRON AND STEEL PRICE INDEX
Composite Market of 14 Iron and Steel Products
Compiled by STEEL
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.
Dollars Per Ton
40 38 36 34
1929
1930
STEEL

Weekly Figures

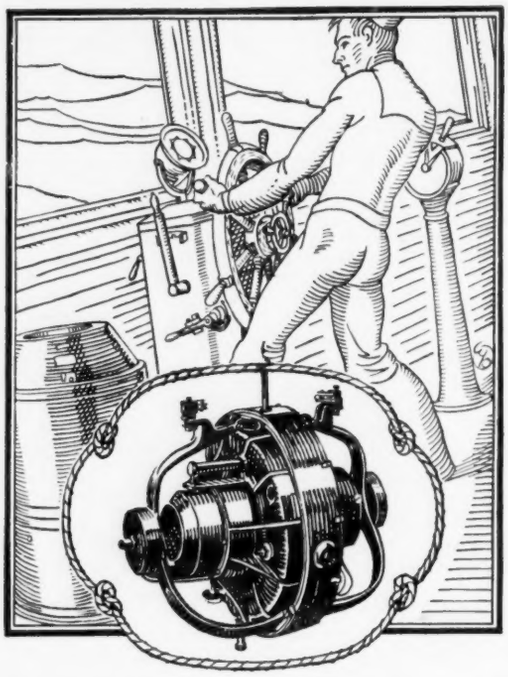
Oct. 15	$32.24
Oct. 8	32.32
Oct. 1	32.62
Sept. 24	32.56
Sept. 17	32.64
Sept. 10	32.68

Monthly Averages

September, 1930	$32.65
August, 1930	32.99
July, 1930	33.21
June, 1930	33.53
August, 1929	36.54

STEADY AS A GYRO-COMPASS

Your Business Paper Marks a True Course



HIGH up in the wheelhouse of a ship there spins a gyroscopic compass, pointing ever at True North. With automatic precision it warns the navigator of the slightest deviation from his course. By its aid he steers his ship unerringly across the waste of waters to its destined port.

Just so the printing press, revolving steadily in its great frame, is symbolic of the guiding function of the business paper in keeping business headed straight. Is industry threatened by stormy times? The business paper points the way across an area of uncertainty to the smooth waters of stability. Does an industry veer from its course to follow misleading lights? The business press sounds a warning. Is the ship of business blown off its track by a sudden shift in public demand, or swerved aside by an unexpected change in production or sales technique? The business press points out the course to safety and prosperity.

It is this function of the industrial and merchandising press, no less than its service as a source of news and data, which makes it a power to be reckoned with in business affairs. For the modern business paper is an essential factor in every progressive industry. By its competence in the gathering and presentation of information, it has made itself indispensable. For its independence in the editorial interpretation of that information it has become respected. It is a strong organization, efficiently staffed and capably administered. It commands a sound, paid, audited circulation. Its news and editorial pages are unbiased and unbuyable.

And for these reasons its advertising pages are bought by businesses with a story to tell to its readers.

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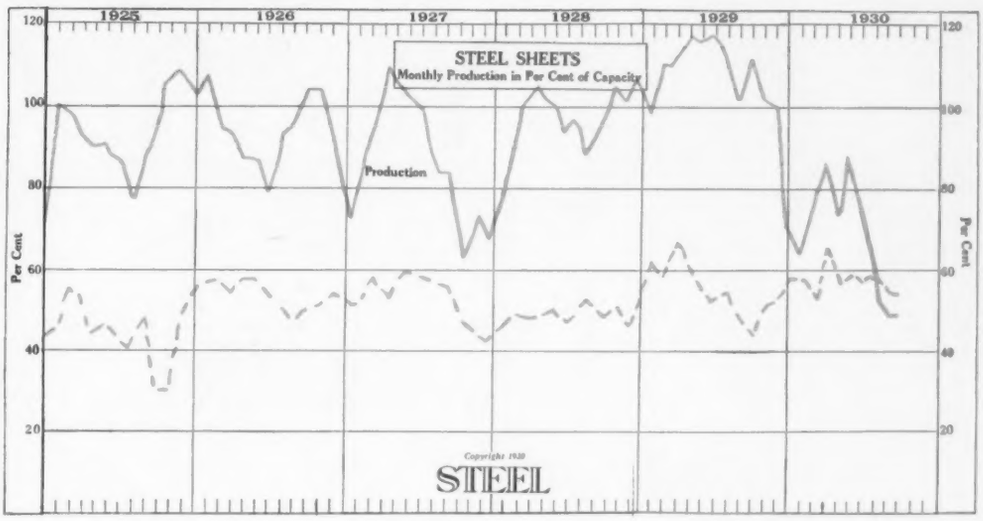
Production
Per cent of capacity

	1930	1929
September	48.8	97.7
August	48.6	109.7
July	50.4	98.1
June	58.8	110.4
May	73.3	115.8
April	84.0	115.2

Stocks
Per cent of capacity

	1930	1929
September	50.4	50.1
August	50.9	42.9
July	54.9	46.9
June	57.3	53.5
May	54.7	49.4
April	56.6	53.8

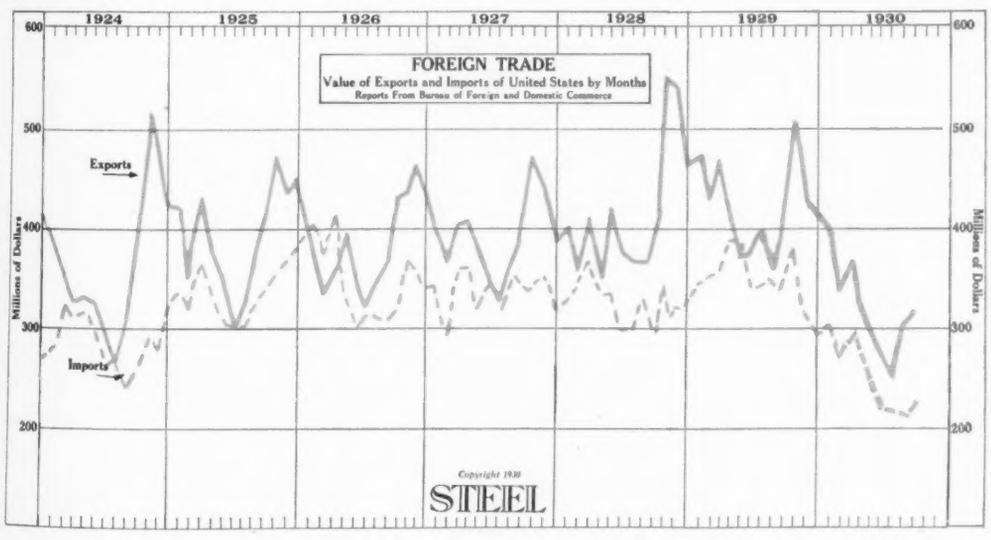


Sales of Sheet Steel Advance Sharply, Output Gains, Shipments Drop

Sheet steel sales reported by independent producers to the National Association of Flat-Rolled Steel Manufacturers in September advanced 43 per cent over the figures for August. Production increased slightly, shipments declined moderately and stocks increased by a small amount. The sharp gain in orders is noteworthy because last year sales in September were less than in August. Sales in September, 1930, were 58.2 per cent of capacity, compared with 41.6 per cent in August. Production was 48.8 per cent of capacity, shipments 50.7 and stocks on Oct. 1 were 50.4 per cent. Unfilled orders on Sept. 30 were 388,599 tons, a slight gain.

American Foreign Trade Increases, But Still Is Far Below Normal

Those who have been watching America's foreign trade for indications of the effect of the tariff must wait a little longer before they receive a definite answer. Both exports and imports increased moderately in September, exports from $300,000,000 to $318,000,000 and imports from $217,000,000 to $227,000,000. The rise is in agreement with the trend of past years, but in 1930 the upward trend starts from a point much lower than the normal summer level. If the 1930 curve follows the usual trend, exports and imports will rise again in October and possibly in November, and then decline gradually until the midyear. World conditions may change this trend.



EXPORTS

September, 1930	$318,000,000
August, 1930	300,000,000
September, 1929	437,163,000

IMPORTS

September, 1930	$227,000,000
August, 1930	217,000,000
September, 1929	351,304,000

THE YEARBOOK

ANNUAL STATISTICAL ISSUE

JANUARY 1, 1931

An Institution throughout the entire Steel Industry ❖ ❖ PRODUCTION · PROCESSING DISTRIBUTION · · · USE.

Use enough space to tell the complete story of your product or service · · Make this the Master advertisement of the year.

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STEEL

A PENTON PUBLICATION

Cleveland

Young enough to lead the industry in a modern age.

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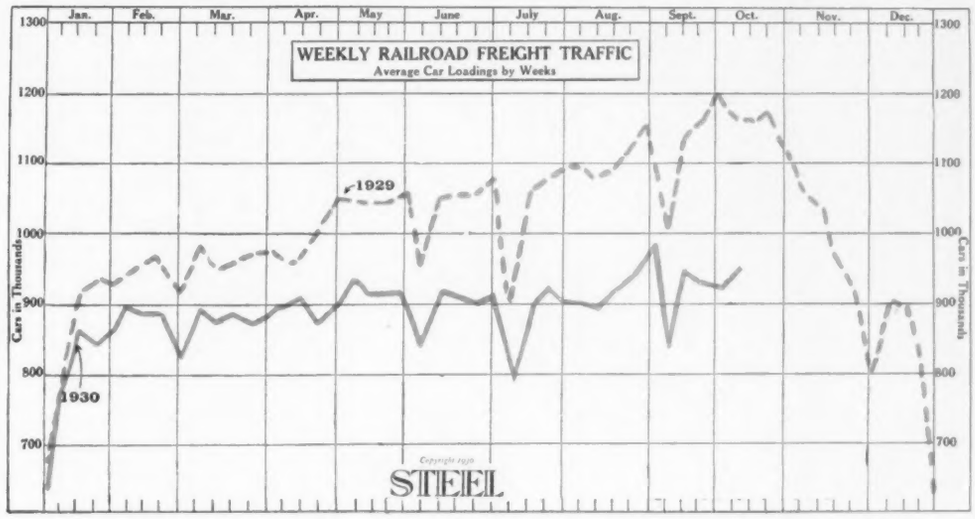
1930	
Oct. 4	972,492
Sept. 27	950,381
Sept. 20	952,512
Sept. 13	965,713
Sept. 6	856,637
1929	
Oct. 4	1,179,047
Sept. 27	1,202,111
Sept. 20	1,166,330
Sept. 13	1,153,062
Sept. 6	1,018,481

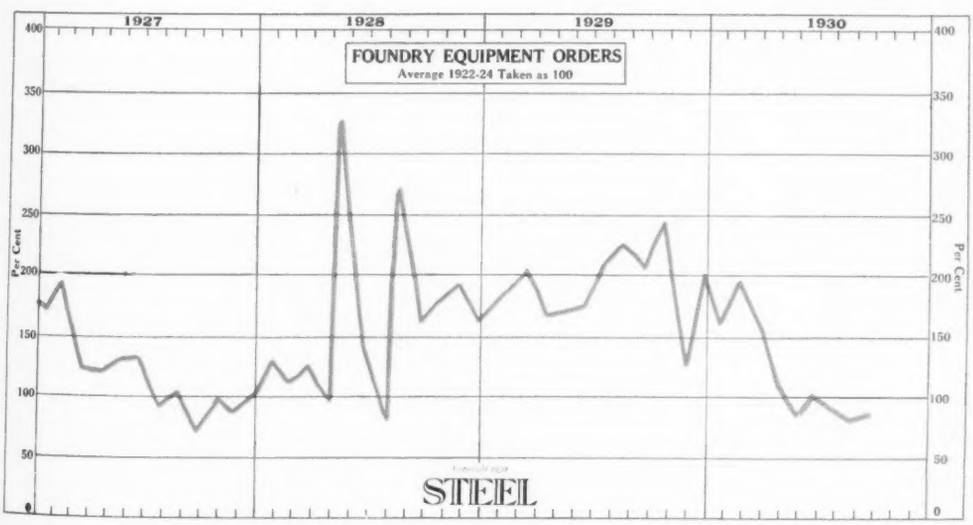


Freight Traffic for Early October Rises, But Volume Still Small

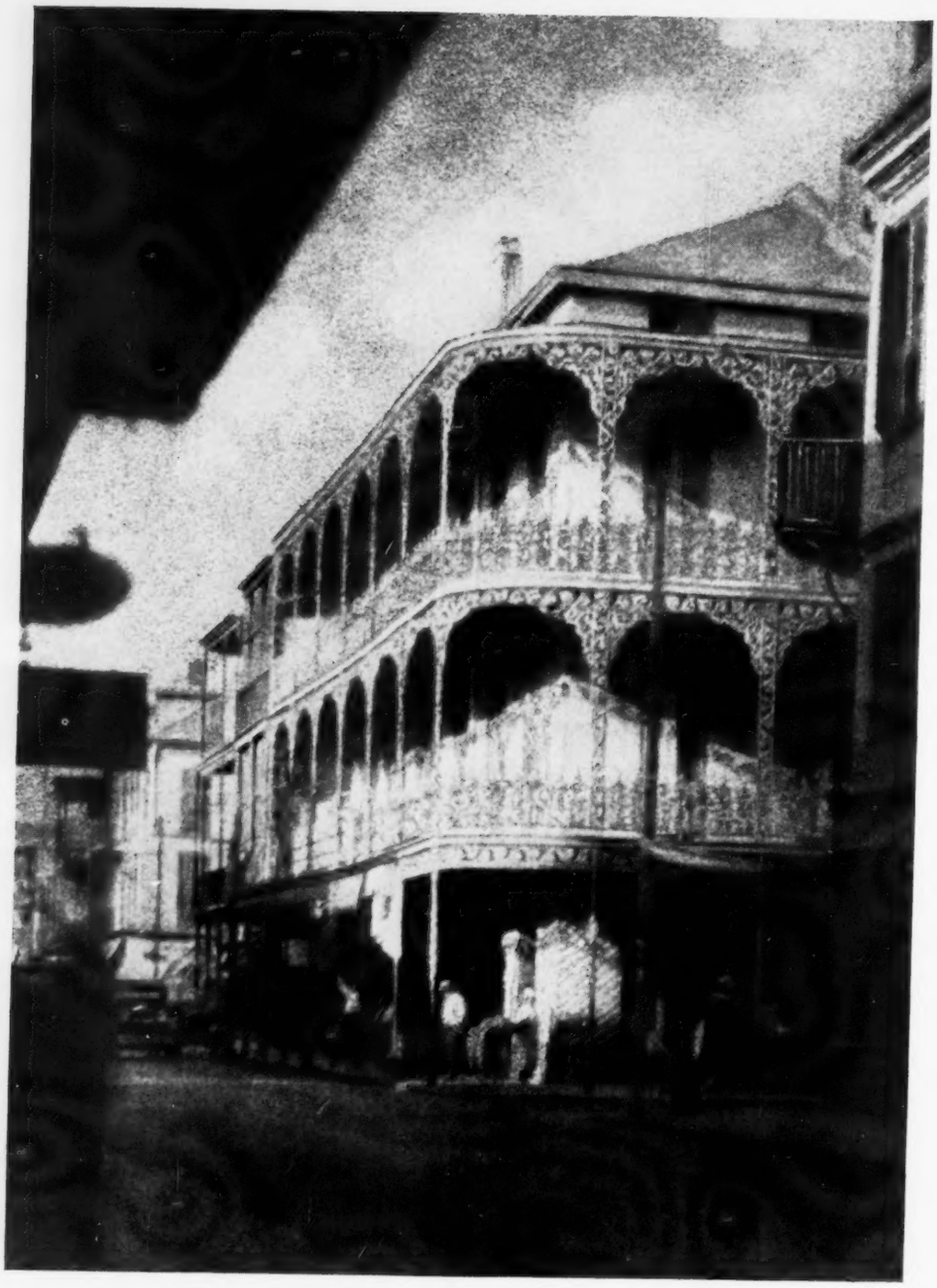
The volume of revenue freight traffic in September was disappointing. After recovering strongly from the Labor day week-end, loadings gradually dropped until the end of the month. During the week ending Oct. 4 a gain of 22,111 cars was reported, the total being 972,492 cars. Last year the trend in freight traffic was upward in September, after which loadings declined during the remainder of the year. Total volume of revenue freight for Septembr, 1930 was 3,725,243 cars compared with 4,542,289 in September last year. The volume of freight of every classification is running below that of last year.

Bookings of Foundry Equipment Show Gain in September

Orders for foundry equipment, which have been declining since March, except for an interruption in June, turned upward in September, according to the monthly figures of the Foundry Equipment Manufacturers association. The association's index for September stood at 91.0, as compared with 85.2 in August and 90.6 in July. In 1929 the September figure was 216.3. Unfilled orders on Sept. 30 were the highest since May, the index standing at 170.8, compared with 140.2 in August. The index of shipments in September was 66.0, the lowest in several years. This compares with 82.6 for August and 176.8 for September a year ago.



Per Cent	1930	1929
September	91.0	216.3
August	85.2	229.5
July	90.6	219.3
June	102.1	177.3
May	92.7	177.7
April	122.8	172.6



NEW ORLEANS' IRON LACE

LIKENED to the mantilla of some Spanish forbear, iron in cast and wrought forms adorns nearly all the old buildings of the Vieux Carre of downtown New Orleans. An interesting camera study is shown above, one of the streets in this section of the city which abounds in ornamental iron work, fashioned centuries ago.

Old Ornamental Ironwork Embodies Traditions of Early Days

Spanish, French and American Craftmanship Preserved in Eighteenth Century Decorative Metal of Old New Orleans

BY MARY WILLIS SHUEY

INABILITY of ferrous materials to withstand the ravages of atmospheric corrosion long has constituted a problem of major importance to the iron and steel industry. Millions of dollars are spent annually in replacing structures or parts of structures made unsafe and unusable by slow oxidation of the metal. Research workers in this country and abroad have sought patiently and diligently to determine the causes of this destruction and to develop new alloys possessing resistant characteristics. Wrought iron, of course, always has been highly resistant and certain types of cast iron have shown splendid behavior in this direction, but until a comparatively recent date, steel has been notably lacking in resisting deterioration.

Today, a totally different picture is presented. Through the use of new alloying elements, varying chemical compositions and more refined processes of manufacture, cast iron and wrought iron more successfully withstand attack and steels are available which will endure indefinitely. These developments bring to industry new materials which will influence the manufacture of ferrous metal products and structures for centuries to come. These alloys, available in cast, wrought and rolled forms, will permit the artisan to create his handiwork to endure perhaps longer than the efforts of craftsmen in ages gone by.

What may come about in the future is purely conjecture, but history is replete with examples of work fashioned from crude materials and by crude methods, and all of these afford an insight of what may come to be. Many cities of

TWO views on Royal street in the Vieux Carre; at the left, looking down the street, showing the balconies and galleries of cast and wrought iron. The cast iron is from the 1840 period the wrought iron of the 1810-1820 period. The gas lamp in the foreground was installed in 1839 and still is used. At the right is an ornamental iron gate, barring a passageway from the street into a garden courtyard

ORNAMENTAL iron gate, a reproduction of the original, at the entrance to the old Cabildo or Spanish government house, now the Louisiana state museum

those first founded in the United States point with pride to early ornamental ironwork which still stands in a remarkable state of preservation. Among these is New Orleans whose wrought and cast iron fences, balconies, galleries, gates, grills and lamp posts in the downtown Vieux Carre, or old square, fashioned more than a century ago, testify to the age-incurring qualities of ferrous metal.

Largest Outdoor Museum

This section of the old city, which someone has termed the largest outdoor museum of diversified smithing, dates back to 1718, and three distinct periods are represented in the ornamental ironwork found there, the ornate wrought iron of the French and Spanish regimes, the interesting iron of early American occupation and the elaborate cast iron of the 1820-1860 period. No other city in the country possibly is as rich in ironwork and no other city, with the possible exception of Charleston, S. C., has retained so much of its Colonial inheritance. Royal street, Chartres street, St. Peter street, St. Ann street and numerous others are flanked their entire length with straight brick buildings flush with the banquettes of the right of way, all decorated with fanciful designs of iron, likened to the mantilla of some Spanish forbear.

From house to house galleries extend in an irregular yet continuous line, with the design changing from gallery to gallery. Arched passageways with large iron gates form the only break in the continuous frontage. Between the galleries are spiked burglar guards of iron, usually embodying sharp-pointed arrows or spears in their designs. The slender pillars which support the galleries are wreathed in iron and upper windows are sheathed with small iron-railed balconies. Initials of a family monogram often are interwoven in the ironwork, furnishing permanent record of the original owners.

In connection with these monograms are many interesting legends of the district, one in particular which natives relate being that of Micaela Almonaster, daughter of the Don Almonaster who rebuilt the chief structures of the Vieux Carre after the disastrous fire of 1788. It is told that the Almonaster girl, disappointed in her love affair with a young Irishman, John McDonogh, later was married to a certain Baron Pontalba who came to an unfortunate end some time after his marriage, his wife being injured at the same time. The disappointed McDonogh resolved to make his name more famous than either Almonaster or Pontalba and in this was successful, bequeathing his fortune to New Orleans and Baltimore whose school children to this day honor his memory. The names of Almonaster and Pontalba are perpetuated in the Pontalba buildings, facing Jackson square in the Vieux Carre. The elaborate ironwork on these buildings, still in good condition, has woven into it at regular intervals the initials *A* and *P*, representing the two famous families. This ironwork of the Pontalba buildings is cast iron imported from France in about 1840.

Hinges and hardware of the remaining portions of the Ursuline convent, the oldest building in the Mississippi valley, are the earliest examples of New Orleans-made wrought iron. The convent was built in 1727, the hinges being fashioned, so the records say, by "brute Africans." Although the Mississippi has carried away the greater part of these convent buildings, the parts remaining are testimony to the hard labor and ingenuity of the construction, built as they were entirely from native materials.

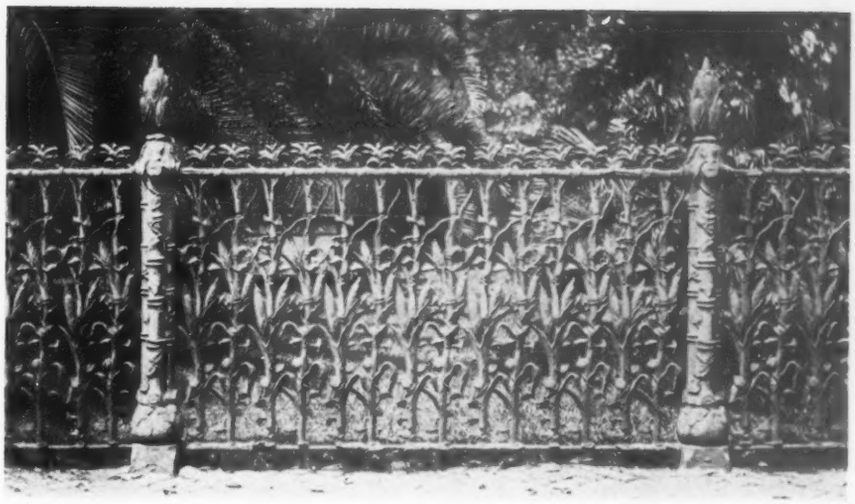
Pirates Were Artisans

Several of the best designs in ironwork are attributed to the forges of two famous pirates of that day, Jean and Pierre Lafitte, who plundered British ships in nearby waters and who operated a blacksmith shop in New Orleans. This shop was said to be a blind, where the stolen gold and silver was melted, but the master craftsmanship shown by the deli-

Ornate use of decorative iron on an old home in the Vieux Carre. Note the cast iron gateposts with ornamental cast iron urns surmounting them

cate iron railings, said to have emanated from the Lafitte shop, belie the plundering nature of these so-called "great rogues."

As mentioned previously, the ironwork of New Orleans falls into three classes—the work of the French and Spanish rules, the wrought iron of the 1800-1820 period, and the ornate castings of the foundries of New Orleans. Visitors often have expressed wonderment that New Orleans, far distant from centers of iron manufacture, should have so many of these ornamental castings. This is explained by the fact that foundries, which cast parts of sugar machinery used in the district could use their equipment for production of the ornamental ironwork which was in great demand at that time. New Orleans abounds in examples of this cast iron, produced over a century ago, the foundries doing a flourishing business until the Civil war.



This corn-stalk fence, an outstanding curiosity of the district, was made entirely of cast iron in the early nineteenth century

Planned Cast-Iron Building

Calling to mind some of the contemplated all-metal structures of the present day is a twisted mass of iron, the ruins of a cast-iron building which these enterprising foundries of pre-Civil war days in New Orleans assembled by riveting together cast iron shapes. The war and a subsequent fire halted work on the building and it was never completed The explanation of a fire in a cast-iron building is not known, but several iron pillars were salvaged and used in the construction of later buildings.

The gates of the Cabildo, or Spanish government house, are the best examples of Spanish wrought iron made in New Orleans, being installed after the fire of 1788. Although extensive repairs were made to these gates after mistreatment they received during the Civil war, the original design has been retained for the most part. It was on a small balcony of the Cabildo in 1803 that the well-known Louisiana Purchase document was signed.

Iron of the Spanish period is simple and beautifully executed, the familiar Widow's Mite, the scroll design and others of European characteristics grace the balconies and gateways of houses rebuilt after the 1788 fire. New Orleans iron of this period is joined together with lead rosettes since most of it was made by slaves, some of whom were capable of executing notably intricate designs but who for the most part did their best work with simple designs and found the malleable lead the best material for pinning together the various ornamental figures.

The cast iron of the 1820-1860 period is often quite ornate, and many of the designs combine both wrought and cast iron. Fences that are partly wrought and partly cast, railings of wrought iron with cast iron supports are to be seen, as well as whole balconies, fashioned of cast iron. Other examples are cupids doves, roses, and fruit, all cast together; fences representing stalks of corn with ears at the top and pumpkins trailing over the lower part, with chestnuts and morning glories around the gatepost. The corn-stalk fence, shown in accompanying illustration, is attributed to Latrobe who came to New Orleans to install the city waterworks. He is said to be the originator of the idea of the corn-stalk fence and his work is one of the outstanding curiosities in New Orleans today. A number of cast iron lamp posts, erected in 1839, still remain on several streets of this old section of the city.

Ornamental ironwork on one of the Pontalba buildings. The initials of the family monogram appear at regular intervals in the balcony and gallery guards

Other Effects Obtained

Fountains always have been popular in New Orleans, probably due to the many courtyards. Fountain figures of iron are interesting examples of century-old fabricating, as are the old iron tables and chairs for the gardens; but while these works command their share of attention, nothing can surpass the fine wrought iron of the earlier days, now seen on the many balconies and galleries of the Vieux Carre, Reproduction of these old balconies has become a fine are as they are much in demand by antique hunters. Although reproductions of these older creations usually are in perfect harmony with the originals, nevertheless it is possible to detect them, and the original works are now being carefully guarded and treasured by their owners as the last descendents of an age-old art and age-old artisans.

Tool Builders To Initiate Market Analysis Work

EFFORTS of American machine tool builders will be directed toward a $400,000,000 replacement market during the next five years, judging by action taken at the twenty-ninth annual meeting of the National Machine Tool Builders' association at Hotel Aspinwall, Lenox, Mass., Oct. 12-15. A proposal for a three-year program of machine tool marketing study on the part of the association was adopted by members of the association by unanimous vote.

This action was taken after the meeting had listened to two addresses dealing with obsolescence and marketing. The 1930 survey of machine tool equipment, as did the survey in 1926, showed that a large number of machine tools over ten years old are in use in the various production metalworking industries, the proportion of old tools generally being over 40 per cent and in some cases running over 70 per cent. With ten years generally accepted as the life of a machine tool in a well-managed production plant, it was immediately apparent that regardless of industrial expansion during the next five years, the replacement market offers lucrative sales possibilities to the tool building industry.

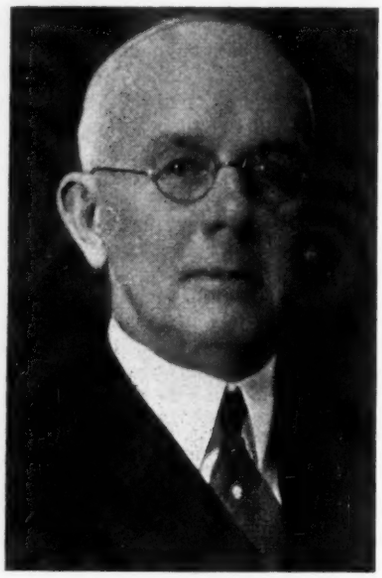
Conclusions Are Preliminary

This condition was revealed by Kenneth H. Condit, editor, *American Machinist*, New York, giving the preliminary conclusions of the machine tool questionnaire sent out by his publication during the last few months. The first survey was made in 1926, but the five-year period before the second was not allowed to elapse as had been intended originally because the industrial depression and the Hoover conference had precipitated an immediate need for the information.

Mr. Condit employed slides to display a large number of charts and these charts showed the general proportion of obsolete tools used by various industries as well as the proportion for each important type of machine.

With the audience already convinced of the importance of the replacement market, Frederick V. Geier, vice president, Cincinnati Milling Machine Co., Cincinnati, and treasurer of the Tool Builders, used an effective combination of address and layouts projected by balopticon, to discuss marketing research. Briefly, he defined the machine tool replacement market during the next five years as a $400,000,000 sales target for which the association could aim. At the same time, he cautioned the members that the only way to score effective hits was through carefully controlled shooting, in other words, through scientific sales promotion based upon careful and complete market analyses.

Rather than have individuals try to carry on such research and planning independently, Mr. Geier advocated that the board phases of marketing be made the subjects of research and study on the part of the association. On behalf of the budget committee, therefore, he proposed that the staff be augmented as necessary and that costs of the investigation be paid in part from proceeds of the 1929 exposition and in part from the general funds of the association.



Carl A. Johnson

Who last week was re-elected president of the National Machine Tool Builders' association

Hearty approbation of this plan was expressed by several members, including W. A. Viall, vice president, Brown & Sharpe Mfg. Co., Providence, R. I., and Col. L. S. Horner, president, Niles-Bement-Pond Co., New York. Col. Horner voiced his strong conviction that in addition to the large replacement market, the next five years would witness plenty of new business, inasmuch as millions of people in America—particularly in rural America—need and will demand such things as modern household improvements, electric light plants, electrically-driven farm machinery, and other equipment.

Presenting his annual report of general manager of the association, Ernest F. Du Brul characterized the present condition of the machine tool business as "the industry's usual third year slump," and pointed to conditions in 1921, 1924 and 1927 as proof of such cyclic regularity. From the experiences of the years just mentioned, he deduced that at this point of the 1930 cycle machine tool demand should show an upward trend. This was borne out by index figures which came in during the meeting. With the index figures tending to bend the curve slightly upward, it became apparent that, while the 1930 slump was worse than that of 1927, it was not as severe as that of 1924.

Mr. Du Brul said that machine tool builders voluntarily assume managerial problems of great difficulty when they enter this notoriously irregular business. It therefore behooves them to insure fair profits by careful application of good business methods, good engineering and selling efficiency, and not through any such fallacious means as price cutting, which only results in reprisal. Little or no price cutting is going on at the present time.

Cost Studies Valuable

As an important measure of business insurance, Mr. Du Brul urged members to take more general advantage of the cost studies being made by the association, which are being applied with marked benefit by some of the members, and which are receiving recognition outside the association.

Mr. Du Brul pointed with satisfaction to the results of ten years of active staff work, during which the staff has grown from the general manager and one stenographer to three executives and a stenographic force of six. He took occasion to emphasize again the active part played by Mrs. Frida Selbert in carrying on the work over these progressive years.

He announced a net increase of 14 members, the year having started with a membership of 146 and being marked thus far with two resignations and 16 applications. In closing, he urged hearty support of the proposal that the promotion of scientific marketing be made the major feature of the association's program during the next two or three years.

On the morning preceding the formal opening of the convention, group meetings were held, each of which dealt with the particular problems of one specific branch of the industry. These group meetings continued throughout the three days. The plan of subdivision of the association's activities is indicated by a brief survey of the group meetings which included: Surface grinders, tool and cutter grinders, universal and cylin-

drical grinders, milling machines, sensitive drills, engine lathes, multiple-spindle drilling machines, planer-type milling machines, high-duty drills, turret lathes, planers, automatic lathes, automatic screw machines, vertical boring machines, metal sawing machines, shapers, horizontal boring machines, auxiliarly drill heads, upright drills, radial drills, and threading machines and die heads.

This not only gives an impression of the scope of the association's work, but it also gives an indication of the degree of specialization which has developed in an industry wherein only a comparatively few years ago little specialization existed. In other words, the old time machine tool builder was inclined to catalog all kinds of tools and would build on order machinery not even cataloged, while now sharp lines are apt to be drawn between the products of different companies, and individual companies are more and more inclined to adhere closely to standards within their closely defined fields.

Verbal Reports Heard

Before the second general session on Tuesday reports were presented by chairmen of active committees and of group meetings. These verbal reports in the main were brief as written reports are to be submitted later. There was some discussion regarding the standard proposal form, which since its adoption by the association has aroused some objections on the part of dealers. A joint committee made up of dealers and builders now has this matter under consideration and satisfactory modifications are expected in the near future.

In an address, "Pricing for Profits," by W. L. Churchill, industrial economist, White Plains, N. Y., the speaker furnished some food for serious thought on the part of those engaged in an industry whose cost accounting methods have in the past been notoriously lax, resulting in altogether too many prices based upon guesswork instead of upon accurate and timely cost figures. Mr. Churchill by no means confined himself to pointing out that inadequate profits in the machine tool industry are in a large number of cases directly traceable to ineffectual methods of costing and pricing. He drove it home to his listeners how comparatively simple and inexpensive it is for any company worthy of a name to put into effect methods which will give a solid foundation of costs upon which can be built fair prices which will not only yield adequate profits but which will raise the esteem of machine tool builders in eyes of worth-while users, who readily recognize and respect good business methods on the part of their sources of equipment.

Carl A. Johnson, president, Gisholt Machine Co., Madison, Wis., was elected to succeed himself as president of the association. Other officers named are shown elsewhere on these pages. In his presidential address, Mr. Johnson complimented the membership upon its generous response to the call of the association in spite of the general condition of business. Acknowledging his re-election as president, he stated that he again accepted the office with full realization of the rather heavy duties involved as his contribution to the furthering of the cause of the industry.

Coming as it did at a time of depression in the industry, the meeting presented a timely opportunity for leaders in machine tool building to orient themselves. The meeting was well attended, 75 of the member companies being represented by 133 individuals. In addition, 11 guests were present. The only entertainment feature of the convention was the annual banquet on Tuesday evening, upon which occasion Ralph E. Flanders, manager, Jones & Lamson Machine Co., Springfield, Vt., officiated as toastmaster.

New Officers

President

CARL A. JOHNSON

President, Gisholt Machine Co., Madison, Wis.

First vice president

ROBERT M. GAYLORD

President, Ingersoll Milling Machine Co., Rockford, Ill.

Second vice president

CLAYTON R. BURT

President, Pratt & Whitney Co., Hartford, Conn.

Treasurer

GEORGE E. RANDLES

President, Foote-Burt Co., Cleveland

Directors for 3-year term

FRED H. CHAPIN

President, National Acme Co., Cleveland

HENRY S. BEAL

Assistant general manager, Jones & Lamson Machine Co., Springfield, Vt.

RICHARD A. HEALD

Secretary, Heald Machine Co., Worcester, Mass.

Purchasing Agents Conduct Sectional Meeting

Steel occupied a prominent position in discussion at the sixth district convention of the National Association of Purchasing Agents held in Pittsburgh, Oct. 16 and 17. Delegates present represented chapters from Akron, Canton, Cincinnati, Cleveland, Dayton, Springfield, Columbus and Toledo, O., and western Pennsylvania.

Dr. John S. Unger, manager, research bureau, Carnegie Steel Co., Pittsburgh, spoke on "Steel" at the Thursday morning session. He discussed the expanding use of steel and recent developments of new markets. Benjamin Schwartz, director general, Institute of Scrap Iron & Steel Inc., New York, described the activities of the institute and the work done since its organization in improving the gathering and distribution of scrap material.

Other speakers at the convention included J. D. A. Morrow, president, Pittsburgh Coal Co.; H. J. Rose, director of general laboratories department, Koppers Co., Pittsburgh; and E. R. Norris, general works manager, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

Steel Angles from Chicago

(*Concluded from Page* 37)

the Oklahoma oil country will be given a setback by the recent finding of the Oklahoma Supreme Court in upholding the constitutionality of that state's oil conservation law. An appeal to the federal courts has been made, however,

About 25,000 tons of plates for oil tank building are on inquiry, much of which is in Oklahoma. These refinery projects are expected to be held back indefinitely, and as a result only 8000 to 10,000 tons are regarded as active.

The possibility of adverse effects on tank car builders from the recent advances in piping gasoline has been considered seriously. Nevertheless, tank car builders report that the gasoline business done by the tank car customers represents a relatively small part of tank transportation.

General American Tank Car Corp. has less than 20 per cent of its business in gasoline tank car transportation, and the loss of about half of it would mean from 8 to 10 per cent of the total income, it is stated. Although gasoline is the largest single item carried by the company's string of tank cars, rapid strides have been made in recent years in expansion and diversification which has increased the number of commodities besides petroleum to more than 50.

Car builders, in the absence of freight car orders this year, have amplified their side lines, and have entered the structural steel fabrication market when conditions were advantageous.

The treasury department has revoked the drawback allowance to B. F. Avery & Sons, Louisville, Ky., on farm implements manufactured with the use of imported steel bars and bands.

Pipe Storage Facilitated by Modern Handling Methods

WITH the recent rapid growth of long distance transportation of natural gas, gasoline and oil by pipe line, purchases of large quantities of oil by pipe are the rule. It is not unusual therefore, for a pipe manufacturer to receive orders for a hundred miles or more of pipe for one particular job. Several years ago the A. O. Smith Corp., Milwaukee, pioneered a new process for making steel pipe rapidly and in long lengths. By the use of highly developed automatic machines, plates of steel are formed to size and the seam electrically welded, standard lengths being 30 and 40 feet and diameters ranging from 10 to 26 inches. Pipe of this size is used largely for pipe line construction.

Large Runs Economical

By the continuous welding process, it is most economical and convenient to produce pipe of a given diameter, in large lots. After one run of several days or more, the automatic machines are adjusted for another size. If the field, conditions can be such that it is impossible to lay the pipe as fast as it is produced, therefore it became necessary either to provide an adequate storage system at the plant, or to ship the pipe to the consumer as it was manufactured. Since the latter plan was impractical because of inconvenience to the pipe line contractor, an adequate yard for temporary storage was laid out at the Smith plant.

The yard consists of a large craneway approximately 700 feet in length and 100 feet wide, the runway being mounted on steel supports almost 80 feet from the ground, and providing a clearance of 77 feet between the ground level and the bottom of the crane rail. The accumulated pipe is taken from the manufacturing department in steel cribs, of which two sizes are used. The smaller ones are 8 feet 3 inches high, and hold pipe from 10 to 14 inches diameter; the larger cribs are 11 feet high for sizes from 14 to 26 inches diameter. Each crib contains sufficient pipe for a carload consignment regardless of the size of the pipe. The uprights of each crib are fitted with pointed shoes that fit into recesses in the crib above, forming a firm connection and keeping the stacks level. Where the crib rests on the ground, similar steel points and base-plates are imbedded in heavy concrete foundations.

From the main plant, these cribs, full of pipe, are set upon special flat cars and transferred by rail to the storage yard. They are then lifted from the cars on the incoming track by a overhead crane and stacked on one side of the runway. Stacks are either six or eight tiers high, according to the size of the cribs.

When reclaiming for shipment from the storage yard, the cribs are removed tier by tier from the pile and deposited on the flat cars on the opposite side of the runway. From there the pipe is taken to the loading platform where a 20-ton crane removes the pipe from the cribs, holds it while it is bound together with steel straps, and finally lowers it into gondola cars for shipment. Empty cribs are either returned to the plant to be filled, or to the storage yard.

Crane Is Well Adapted

The 50-ton crane which handles the cribs of pipe in the storage yard, was manufactured by Harnischfeger Corp., Milwaukee, and is well adapted to this use. It is a full roller bearing crane, of 100-foot span, traveling upon four 2-wheel equalizing trucks. The crane trolley is of the double-drum type, equipped with four-point suspension. It has an equalized lifting frame provided with automatic grapple hooks to engage the upright members of the cribs. The operator has complete control from the cab of the hooking and unhooking of the cribs.

The capacity of this yard is sufficient to store 450 miles of 10-inch pipe or enough to fill 952 gondola cars. This pipe would weight 38,500 tons or 77,000,000 pounds. No data are available on just how much pipe

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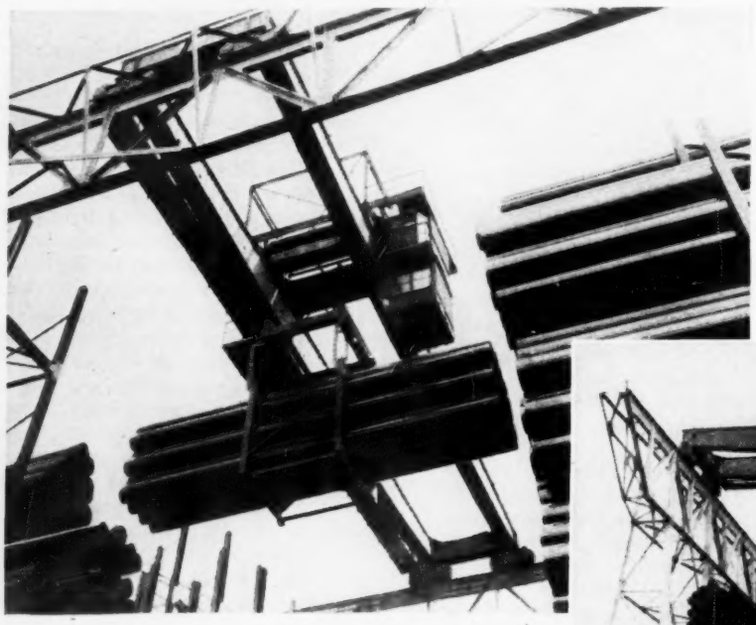

(Left)—The 50-ton crane easily transports the cribs holding a car load of pipe from the storage racks to the cars. (Below)—View of the storage yard showing the unusual height and span of the crane and the method of stacking cribs

Recommends Practice for Clean Open-Hearth Steel

RECOMMENDATIONS for obtaining clean steel in the open hearth through the elimination of nonmetallic inclusions were made at the fourth annual meeting of the metallurgical advisory board of the Carnegie Institute of Technology and United States bureau of mines. The meeting of the board was held in the bureau of mines building, Pittsburgh, Oct. 17 before an overflow assemblage of 347 steel plant metallurgists and officials. The findings regarding the clean steel recommendations were the results of the fourth year's study of a five-year program.

Progress Is Reported

In addition, the reports of the board dealt with other phases of research in steelmaking practice now under way in the steel industry. Further progress was reported on the study of iron-manganese-carbon alloys. Another year will complete the major portion of the five-year program originally outlined, but it was intimated that the study will be renewed at its conclusion. Expense of the research is borne by industrial organizations, the bureau of mines and Carnegie Institute of Technology. Corrosion-resisting steels will be subjected to a broad investigation during the coming year, it was stated, following the presentation of a report of the first year's research of these metals.

The metallurgical advisory board, composed of 25 executives of the steel and allied industries, originally was called together by the Carnegie Institute of Technology in 1923 to advise its department of mining and metallurgy. Early in 1924 the bureau of mines moved its laboratory for research in ferrous metallurgy from Washington to Pittsburgh and co-operative research fellowships were then arranged for at the Pittsburgh experiment station. A special committee of the advisory board early in 1926 recommended the study of nonmetallic inclusions in steel with particular reference to the action in the open-hearth responsible for dirty steel. Investigations are being carried out both in the laboratory and at open-hearth plants in the Pittsburgh district.

Dr. C. H. Herty Jr., physical chemist, bureau of mines, in direct charge of this five-year program, reported on progress made during the past year, being assisted in the presentation by Dr. G. R. Fitterer, associate metallurgist, bureau of mines, also engaged in the study. This general investigation includes a study of slag viscosity and deoxidation with aluminum-silicon alloys, manganese and manganese-silicon alloys as well as the identification of inclusions. The electrolytic method is used in collecting the nonmetallic inclusions, the sample being suspended in a container immersed in a copper tank.

It was found that the percentage of inclusions averaged about 0.20 per cent. The smaller particles had a higher silicon content than manganese. Results also showed that the range of composition of the alloys which gave extremely large particles was, in ratios of manganese to silicon, from 4 to 1 to about 10 to 1. It was pointed out that a wide range in this work meant more latitude in alloy composition for use in large furnaces. In the study of deoxidation during the past year, 25 heats were made using ferromanganese, spiegeleisen, silicon pig, special silicon-manganese alloys and high-silicon spiegeleisen.

Ferromanganese Speeds Reaction

It was stated that the elimination of nonmetallic matter was hastened by the use of ferromanganese or spiegeleisen ahead of the silicon, and further speeded by using the silicon-manganese alloy and the high-silicon spiegeleisen. Two heats were killed in the furnace with as much high-silicon spiegeleisen as could be included without going above specifications for the carbon. Deoxidation in the mold was completed with aluminum. These heats showed low aluminum consumption in the molds and the finished steel showed a very low chipping cost and extremely low rejections due to surface defects. It was also found that the addition of a small amount of ferromanganese in the furnace after the heat had been killed with the silicon-manganese alloys was most effective in cleaning up residual oxides in the metal.

Dr. Herty pointed out that the 25 heats run during the past year compared with 12 heats completed during the preceding two and one-half years and this increase he attributed primarily to the three improvements in methods of analysis, namely, the determination of iron oxide in liquid steel by deoxidation with aluminum and the determination of nonmetallic content of steel by the inclusion-count method, as described a year ago, and by the electrolytic method. The developments in this research have opened a new road of inquiry, the possibility of using a double deoxidizer in the ladle rather than straight ferrosilicon, as the ferrosilicon addition in the ladle inevitably results in silicate inclusions in the ingot, he stated.

The morning program of the session was devoted to a discussion of the iron-manganese-carbon alloys and chrome-nickel alloys. The work on the former was treated under four separate headings, thermal analysis, crystal structure, heat treatment and metallography, and constitutional diagram. This study has been in progress for several years. Dr. V. N. Krivobok, metallurgist, Carnegie Institute of Technology, in discussing the heat treatment and metallography of the iron-manganese-carbon alloys, described investigations of six groups which included various manganese percentages. The study into the crystal structure of the alloys is being carried on with the use of the "powder" method of X-ray crystallography, consisting of a source of X-rays and a pinhole system to attain parallelism of the beam, in the path of which is placed a cylindrical specimen at the center of a circular camera.

Chrome-Nickel Alloys Studied

Chrome-nickel alloys were studied during the past year along various lines, general results of which were presented by Dr. Krivobok at the recent meeting of the American Society for Steel Treating as described in the Oct. 2 issue of STEEL. A more comprehensive survey is planned for the coming year, including studies of the mechanical properties, resistance to wearing, creep tests at elevated temperatures, plasticity and structural stability at high temperatures as well as microscopic investigation of progress of corrosion and other surveys of corrosion action.

Tribute was paid to the work of steel metallurgists by Charles E. Wilson, vice president, General Motors Corp., principal speaker at the annual banquet held in connection with the board meeting. Four major developments he mentioned were the providing of valve steel, steel for ball bearings, alloy steel for gears, axles, and transmission and the stainless steels. Stating that the automotive industry will continue a large consumer of steel, Mr. Wilson mentioned that the General Motors Corp. with an average yearly production of 1,750,000 units over the past three years annually has purchased 195,000 tons of alloy steel, 630,000 tons of carbon bars and strip and 425,000 tons of sheets. Among the present requirements of the industry he included a more satisfactory material for brake drums, more uniformity in steel that will produce better machinability and a further advance in the prevention of rust and corrosion of steel. George G. Crawford, president, Jones & Laughlin Steel Corp., Pittsburgh, in a short address urged that the time

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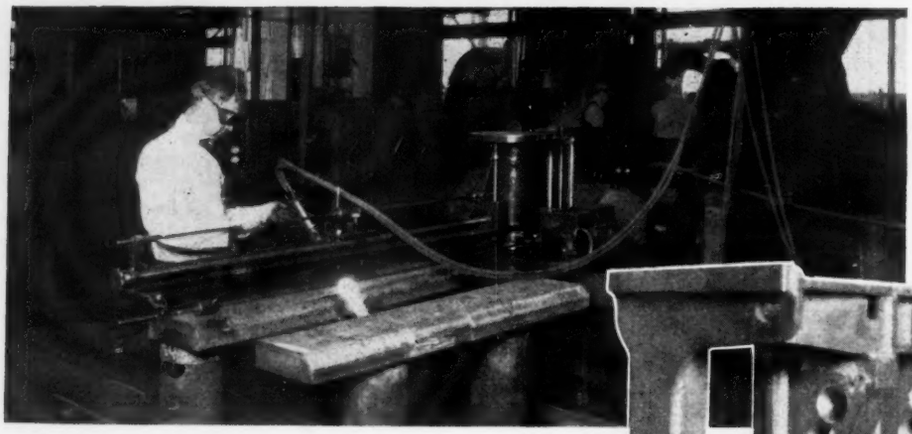

Fig. 1—Double head oxygen acetylene cutting machine designed to cut straight or bevel edges

Assembles Jigs and Fixtures by Arc Welding

BY J. R. WEAVER

Westinghouse Electric & Mfg. Co.

Fig. 2—Front view of drill jig for main base of oil circuit breaker. Weight 1304 pounds

WHEN the idea first was conceived to manufacture jigs and fixtures from structural shapes welded together, several were built and tested to ascertain whether they would prove suitable. They were tested for all the inaccuracies that are liable to occur from warpage, distortion and the like. The belief had been expressed that the jigs and fixtures would not maintain their shape after a period of time but now they have been in use for about a year and still are satisfactory.

Made from Steel Shapes

Jigs are made from hot-rolled steel shapes welded together hardened pieces are made from tool steel and attached to the jigs by screws, bolts, etc., with bushings pressed into the holes provided for them. Some trouble was experienced with the feet on the jigs since annealing rendered the steel so soft that chips on machine tools would imbed themselves in the feet. To overcome this difficulty the feet were made from tool steel, then heat treated before welding them to the jig. The feet are drawn to a scleroscope hardness of 45 to 50 but still can be machined.

When welded jigs and and fixtures were adopted it was found necessary to train tool designers in the art of welding to an extent enabling them to put the proper information on the shop sketches. To do this, several sheets of instruction were prepared showing the various types of welds and beads whch in addition to supplying the workmen in the shop with information, also standardized the manufacture of welded jigs and fixtures. To avoid delays because of material being out of stock, a sheet is available showing the standard stock size of steel that is being used for this particular method of manufacture.

INSTRUCTION sheets showing various kinds of welds and beads are of great assistance to the welding shop in building jigs and fixtures. Shop methods used by Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., in designing and arc welding jigs, fixtures and machine tools recently were described by J. R. Weaver before the Cincinnati section of the American Society of Mechanical Engineers. The accompanying article is an abstract of Mr. Weaver's paper.

Two Sketches Needed

When the designer makes drawings of a jig, he lays out the work without showing any particular method of construction. It is necessary for the tool designer to make a separate sketch which is called a welding and machine sketch. This gives the detailed construction and indicates in the bill of material what material is to be ordered; from the drawing can be obtained the information as to the shape desired. This material then is cut from the proper size material with a saw as in the case of bar stock or with an acetylene torch as in the case of a plate. The parts then are assembled and welded together. The title on the sketch indicates the total length of a certain size weld required to completely weld the jig. This is done for the convenience of the time study supervisor who estimates and sets a value on the time it should take to manufacture the jig.

Because it is not possible or feasi-

ble to test a weld without destruction, the workmen must be relied upon for good workmanship. To accomplish this end, all welders are required to stamp their work with a stencil, this stencil serving as a means of identification so that in case any question arises the work can be traced readily to the man who did the welding. Periodically a test on welds is made and if unsatisfactory work is discovered, the welder is required to take additional instruction. If he proves entirely unsatisafctory, he is taken off the job.

All the necessary large holes are cut by an acetylene torch in the plates before they are assembled into a jig. These various detail parts are assembled and tack welded sufficiently to hold them together. This is done by a mechanic so that the parts will be located and squared properly. After tack welding, the jig is passed to a welder who completes the job by welding. Fig. 3 shows a jig tacked together ready for the welder. Fig. 4 shows a jig completely welded which appears fairly large but it weighs only 120 pounds. It is used for drilling the bracket shown at the right.

Appearance Is Changed

Welding distracts somewhat from the appearance of the completed jig. Moreover, certain strains due to the welding must be removed from the jig so that it maintains its shape and size. To overcome these conditions, all welded jigs are normalized to remove strains, this being accomplished by heating them in a furnace to 1000 degrees Fahr. after which they are allowed to cool in the air. Because of the use of hot-rolled steel and the normalizing a certain amount of scale is raised and this is removed by sandblasting. The jigs are spray painted and then are machined.

Fig. 2 shows a jig weighing 1300 pounds, the overall dimension being 39½ x 51½ x 21 inches. This jig is built entirely of steel using hot-rolled bar stock and plates, the bosses being made from hot-rolled round stock cut off with a saw and welded in place.

The machine shown in Fig. 1 is a double-head oxygen acetylene cutting machine. It was necessary to design a machine that would cut either straight or bevel edges of various thicknesses of steel. One man can operate both heads since the controls are so arranged to be convenient from one position. The structure for this machine worked out satisfactorily and no difficulty has been experienced due to misalignment, vibrations, etc

A machine used for winding mush-type coils for alternating-current motors is fabricated from structural steel and welded together. The tail stock is somewhat similar to the general design of tail stocks with the exception that this is welded from structural steel. Further development, however, will be necessary before this particular type of construction can be applied to general machine tool construction. Welded jigs, fixtures and machine tools are built in a short time. They are light, strong and require little maintenance.

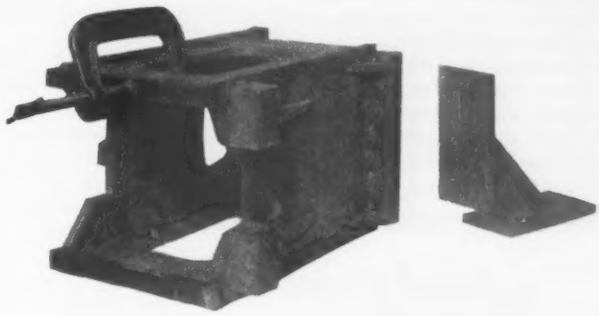

Fig. 3 — Clamp holding tool-steel foot in place for tack welding. A squaring or setting up angle is shown at the right

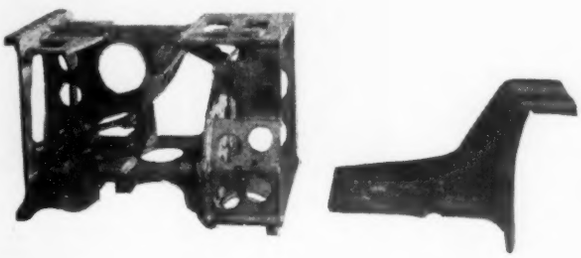

Fig. 4—Body of drill jig for a bracket of a talking motion picture machine. It weighs 120 pounds. A bracket is shown at left

Gas Association To Reward Progress in Public Service

Outstanding progress in distinguished public service made during any calendar year beginning with 1931 will win for a member company of the American Gas association which performed this service a special annual award which will be presented for the first time at the meeting of the association held in 1932. This award has been made possible by Samuel Insull, Chicago, and will be known as the Samuel Insull Award for Distinguished Public Service.

The association has decided to establish an inspection station of its testing laboratory at Los Angeles to obviate the necessity of shipping equipment to Cleveland from the west coast. This will not be an approval testing station, but a careful inspection will avoid additional expense where appliances must be returned for correction.

Pipe Storage Facilitated by Modern Handling Methods

(*Concluded from Page* 52)

could be moved out of the storage yard in a given time, however, from various observations that have been made, the crane could easily average, during a 10-hour working day, one carload of pipe to the flat car every 5 minutes. This also makes allowance for loss of time in shifting cars, etc. Five minutes a load, is at the rate of 120 loads a day. At this rate the yard, if full, could be emptied in less than 8 days.

This installation has proven economical and it also has served to prevent any clogging of output due to the fluctuation of shipping demands; has permitted a full-time economical operation of the pipe plant; assures a supply of various sizes of pipe on hand; and prevents congestion in the field.

Recommends Practice for Clean Open-Hearth Steel

(*Concluded from Page* 53)

between discovery and commercial application of new processes be shortened.

Other speakers included S. H. Colby, vice president and sales manager, Aluminum Co. of America; A. C. Fieldner, United States bureau of mines; and Prof. H. M. Boylston, Case School of Applied Science, Cleveland. Dr. Thomas S. Baker, president, Carnegie Institute of Technology and a leader in the formation of the metallurgical advisory board, presided as toastmaster.

Material now designated "Sheffield plate" was invented by Thomas Bolsover, a cutler of Sheffield, in 1742, and is a veneer of silver on copper or brass or other base metal.

Engineers Discuss Cause and Cure of Depressions

ACKNOWLEDGING that the development of technical and mechanical factors in industry has far out-distanced the development of economic and human factors, speakers at the seventeenth annual convention of the Society of Industrial Engineers held at the Mayflower hotel, Washington, Oct. 15-17, directed the attention of the society to the study of the cause and cure of business depressions. Approximately 250 members of the organization registered. Highlights of the program included the dinner Wednesday night at which Dr. Lillian M. Gilbreth, Gilbreth Inc., Montclair, N. J., was the principal speaker, and which was the first meeting of the Gilbreth International committee on fatigue; the annual dinner Thursday night at which the Harrington Emerson trophy was presented to the society; and, the election of officers Friday. Other features included an inspection trip to the bureau of standards.

New Officers

President
JOHN M. CARMODY
Editor, *Factory and Industrial Management*, Chicago

Vice president, regional east
JOHN J. FURIA
Head, industrial engineering department, Manhattan college, New York

Vice president, regional west
C. H. GULLION
Swift & Co., Chicago

Vice president in charge of research
PERRY A. FELLOWS
City engineer, Detroit

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Vice president in charge of promotion
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Industrial engineer, New York

Treasurer
EUGENE A. RUMMLER
Rummler & Rummler, Chicago

Secretary
GEORGE C. DENT
Chicago

Are business depressions necessary, asked John M. Carmody, president of the society and editor, *Factory and Industrial Management*, Chicago, in making the keynote address. He strongly advised closer co-operation between bankers and industrial engineers. Economic problems are international in scope and intangible in character but they nevertheless should be approached with the same thoroughness and the same scientific method used in solving the mechanical problems of industry.

Ray M. Hudson, New England council, Boston, continuing this same line of thought, said that a well-organized company today was able to closely accommodate its supply of raw material to its production needs and that in a similar way he thought the country, considered as a huge company or unit, should be able to forecast its rate of consumption and thus regulate its production. He advised self-government and co-operation within each industry to the end that more intelligent planning of production and consumption could be secured.

L. W. Wallace, executive secretary, American Engineering council, Washington, raised a controversial point which was taken up by nearly every subsequent speaker. The point concerns the extent, if at all, that the development of labor-saving machinery has contributed to unemployment. While some felt that this so-called technological unemployment is a contributing factor in the present depression the consensus of opinion discounted its significance over any considerable length of time. Mr. Wallace stated that the problems of business depressions are world wide in scope and that we must learn to think and act internationally before they can be solved. Facts are needed and research must be comprehensive, he cautioned.

Discusses Industrial Phases

The social and human sides of the industrial problem were presented forcefully by Frances Perkins, industrial commissioner, State of New York, Albany, N. Y. Life values are apt to be overlooked she said. After all, is man made for industry or industry for man? Is bigger business for the sake of bigger business our objective or are we concerned with the comfort and happiness of the people? She cited an example of a manufacturer of photographic film who installed equipment providing constant standardized temperature and humidity for improvement in the quality of the film and discovered that the workers also improved in health and efficiency.

One of the greatest contributions to civilization, according to Miss Perkins, is American individualism and yet that clashes with the standardization of production. In the solution the industrial engineer must recognize that all workers cannot be made to fit the same pattern and when the attempt to force them into a standard pattern is made industrial neuroses arise.

Security to the worker is of the utmost importance to efficient production, according to a speaker discussing Miss Perkins' talk. Considered from a purely selfish point of view, lack of security may mean thousands of dollars lost to the employer. Each worker sees that jobs are scarce and subconsciously slows up his pace to stretch out his job. This desired security often may be built up by taking the worker into closer confidence by explaining the amount of work in prospect and the fact that his co-operation will help in maintaining the plant's full-time operation.

Dr. Lillian M. Gilbreth
Who was principal speaker at the meeting of the Gilbreth International Committee on Fatigue

R. H. Lansburgh, First National bank, Detroit, talked on unemployment and purchasing agents. He said that Detroit has 84,000 registered men out of work. Employment offices are inadequate and thousands of men are required to stand in line all day to make application for the few jobs which may be available. This

(*Concluded on Page* 64)

Steel Residences—Is This Market Appreciated?

BY R. T. MASON
Associate Editor, STEEL

Part II

THE parties most directly interested in marketing steel frame houses, the patent holders for various types of steel frame construction, are doing the bulk of the promotion work. Walter Bates Steel Corp., Gary, Ind., the McKay Structural Steel Co., Cleveland, Colorado Fuel and Iron Co., Denver, holder of a McKay license, and other fabricators are concentrating on a broadening plan of merchandising their products.

THIS is the second installment of three articles describing the progress in merchandising steel frame houses. The first article appeared in the Oct. 16 issue of STEEL and portrayed the history of steel frame construction for residences. The third and final article will be published in an early issue of STEEL.

Part II, presented on these pages takes up in detail the methods for creating public interest used by the Steel Frame House Co. and its co-operating merchandisers. Publicity, advertising direct mail and inspections were important factors in developing a public consciousness of the benefits derived from steel framing for residences.

The steel fabricator attacking this problem on the broadest basis, however, that of educating the builder and purchaser nationally, is the Steel Frame House Co. subsidiary of the McClintic-Marshall Co., Pittsburgh.

Before attempting its program of national advertising and building promotion, however, the Steel Frame House Co. set up a nation-wide distributing organization. It has more than one hundred distributors from coast to coast, reaching from Seattle and Los Angeles to Miami, Fla. and Burlington, Vt. It is building toward the time when steel frame houses will be available anywhere in the United States, and the purchase of materials as easily accomplished as for those it replaces.

This organization has built model houses in ten cities of 50,000 to 200,000 population, including Philadelphia; Syracuse, Rochester and Buffalo, N. Y., Detroit, Columbus and Toledo, O., Indianapolis, and Lancaster, Pa.

A rounded out program of advertising and publicity was conducted in the erection of these houses. Builders and manufacturers of materials for equipping these model houses were invited to participate in the promotional campaign. Newspaper and direct mail advertising was centered in each city. Full page advertisements were carried in the local newspapers by the Steel Frame House Co. These started with the announcement of the steel being shipped and carried through the progress of erection to the final com-

OPEN TODAY
THE ONLY STEEL FRAME HOMES IN PHILADELPHIA DISTRICT
COME TODAY
. . . or any day this month . . .
and Inspect the Steel Frame Homes at
WYNCOTE AT WAVERLY ROAD AND HEWETT ROAD
ELKINS PARK AT FOREST AVENUE AND MARION ROAD
America created the modern skyscraper and gave business a new age in building.
Now, we have gone further and given the nation a new age in home building.
Out of vision and foresight and knowledge, American industry has created a new and better type of residential construction. It is perfected in the modern Steel Frame Home erected in Philadelphia district.
See it! No other type of construction can be so durable. It is fireproof. It is strong, sturdy, rigid. Any architectural design can be used without a single exception.
See it! Make certain you do see it if you own a home—or expect to build some day—if you are alive to progress and aware of the advantages in things that are new, interesting, improved . . . and perfect.
You will see a home built as all modern homes should be—built so as to possess every advantage of skyscraper construction and to give everything you expect of the place where you live.
STEEL FRAME HOUSE COMPANY
PITTSBURGH, PA.
The Furnished Steel Frame Home is at Wyncote
DIRECTIONS
BY TRAIN
BY TROLLEY
BY MOTOR
FOLLOW STEEL FRAME SIGNS

Above is illustrated one of the advertisements that appeared in newspapers in cities where steel frame houses were being constructed. It gives detailed directions for reaching the property

Advertising of companies supplying material was run throughout the campaign

pletion. Interspersed were advertisements conforming in appearance to the rest of the campaign sponsored by the manufacturers of materials and equipment including the Crane Co., Rome Brass & Copper Co., Graybar Electric Co. Inc., National Steel Fabric Co., U. S. Radiator Corp., Solidon Products Inc., Hays Mfg Co., Silent Automatic Sales Corp., Jones & Laughlin Steel Corp., and Steel Frame House Co.

Concluding the newspaper campaign was the full page advertisement headed "Open Today" announcing completion of the house and furnishing directions for reaching the site.

Advertise by Mail

All during the time of erection the Steel Frame House Co. kept a steady flow of direct mail moving to builders, architects, material supply dealers, and all phases of business identified with or interested in house building including banks and building and loan associations. Three pretentious booklets were mailed: "Homes of Steel" was issued primarily for the consumer, showing completed perspectives with floor plans for many designs of houses; "Steel Framing for Dwellings" was prepared for the builder and contractor, showing completed perspective, floor plans and details of erection; "The Story of the Steel Frame Home" was prepared for the individual, and detailed the many benefits obtained by using steel framing.

In addition to these booklets, postcards were supplied with the imprint of the name and address of the various co-merchandisers. These carried a standard message and were mailed by the individual companies to their own prospect and customer lists. For example, the National Steel Fabric Co., Pittsburgh, mailed 50,000 circulars, carrying the standard advertising message, to its prospects and customers, advising that "The Steel Frame Home" used Steeltex for walls, floors and ceilings.

All during the process of building, and after completion, the favor of the daily was had, and valuable publicity for this latest achievement in building appeared. From the time a city was selected, through the process of building, and after completion, a steady stream of newspaper publicity was obtained. This included unprejudiced reports by building officials, contractors, and others qualified to voice an opinion on the relative merits of buildings and building materials.

More than local interest was aroused, however, national magazines and periodicals catching the spirit of modern progress that the "Steel Frame House" signifies. General magazine advertising was used to some extent and the editorial articles created voluntarily by the journals also were influential in molding public opinion.

Much Interest Created

The result of these promotional efforts was the creation of interest among the general public that brought more than 200,000 visitors to the steel frame houses. The effectiveness of this co-operative merchandising has been shown in not only the visiting of the model houses, but in the spread of demand for steel in residential construction. These activities bring the progress of merchan-

New Type Steel Frame Home Started in Syracuse
FAR SUPERIOR TO WOOD TYPE, SAYS BUILDER
WILL BUILD MODEL
10,000 INSPECT STEEL HOUSE
New Steel Frame House Rising in Bradford Hills
MANY INSPECT STEEL HOUSE
Framework of Model Steel House at Bradford Hills
STEEL FRAME HOUSE TO WIN WIDE INTEREST
STEEL EXPERT TO BUILD HOME
Steel Frame Demonstration House Lighted at Night
SIGN DUE MONDAY
Sales Staff Inspects Bradford Hills Steel Frame Home
BATHROOMS IN STEEL FRAMED HOME MODERN
STEEL WALLS CANNOT CRACK
STEEL HOUSE HEAD IN CITY
THOUSANDS SEE STEEL HOUSE
MODEL HOUSE DIGGING BEGINS
SALESMEN SEE HOME OF STEEL
HOUSE AWARD WILL BE MADE
PUBLIC TO SEE HOUSE FRAME
MODEL HOUSE STEEL IS DUE
STEEL FRAME IS EXPLAINED
STEEL HOUSE OPEN IN FALL
Office for Steel Frame Dwelling to Be Near Site
STEEL HOUSE BASEMENT IN MODERN STYLE
STEEL FRAME HOME EXCAVATION TO BEGIN
STEEL FRAME MODEL SHOWN

Newspaper publicity, such as illustrated above, was an important factor in creating public interest in steel framing for residences during the campaign carried on at Syracuse, N. Y.

dising steel frame homes to its present status. Realizing future possibilities will depend upon the energetic and efficient promotion to be undertaken by fabricator and distributor, architect and contractor, as well as the steel mills themselves.

Manufacturers Association Elects State Officers

The National Association of Manufacturers recently announced the election of the following state vice presidents for the year 1930-31: Alabama, Julius Goslin, Goslin-Birmingham Mfg. Co., Birmingham; California, Watt L. Moreland, Moreland Motor Truck Co., Los Angeles; Connecticut, Henry Trumbull, Trumbull Electric Mfg. Co., Plainville; Georgia, Garnett Andrews, Richmond Hosiery Mills, Rossville; Illinois, C. W. Sencenbaugh, Western Wheeled Scraper Co., Aurora; Indiana, G. M. Williams, Marmon Motor Car Co., Indianapolis; Iowa, R. S. Whitely, Curtis Co.'s Inc., Clinton; Kentucky, W. Hume Logan, Logan Co., Louisville; Maryland, Albert W. Adt, J. B. Adt Co., Baltimore; Massachusetts, Frank Williard, Graton & Knight, Worcester; Michigan, Robert W. Irwin, Robert W. Irwin Co., Grand Rapids; Missouri, Robert L. Lund, Lambert Pharmacal Co., St. Louis; New Jersey, C. R. Burnett, American Oil & Supply Co., Newark; New York, H. L. Derby, Kalgfleisch Corp., New York; Ohio, Charles B. King, Marion Steam Shovel Co., Marion; Pennsylvania, O. W. Buenting, Westinghouse Air Brake Co., Pittsburgh; Rhode Island, Art Hadley, Hadley Co., Providence; Tennessee, I. B. Merriam, Chattanooga Boiler & Tank Co., Chattanooga; Wisconsin, George Vits, Aluminum Goods Mfg. Co., Manitowoc.

Seek Aesthetic Design for Elevated Steel Tanks

In an effort to obtain a more aesthetic design for commercial structures and still retain the practical features, Chicago Bridge & Iron Works, Chicago, is sponsoring a competition for improved design in elevated steel tanks. Four thousand dollars in prizes are being offered for the best eight renderings with a first prize of $2000.

Entries in the competition will consist of two drawings of a typical elevated steel tank with a nominal capacity of 200,000 gallons, a height to top of approximately 110 feet, a height to bottom of not less than 85 feet, and a riser not less than five feet in diameter. One drawing will include a direct elevation and two horizontal sections or plans to ¼-inch scale. The other will be a perspective drawing to the same scale.

Requirements for entry, drawings required and general regulations of the competition are set forth in a brochure published by the company entitled "Program of Competition." This publication states that the competition, is "to develop a general aesthetic improvement in the character of elevated steel water tanks and their supporting structures." Copies of the brochure may be obtained from Albert M. Saxe, 430 North Michigan avenue, Chicago, who has been appointed professional advisor.

Gas Products Group Elects

E. L. Mills, sales manager, Bastian-Blessing Co., Chicago, has been elected president of the Gas Products association at the recent meeting of the association at Chicago. Other officers of the group chosen at this meeting are as follows: First vice president, A. J. Fausek, Modern Engineering Co., Kansas City, Mo., and second vice president, W. H. Ballance, Electrox Co., Peoria, Ill.

Booklet Presents Survey of Manufacturing Budgets

Budgeting practices of more than 80 representative manufacturing concerns are presented in detail in a 40-page report of the Metropolitan Life Insurance Co., New York, entitled "Budgeting Manufacturing Operations." The report, prepared by the policyholders service bureau, considers the procedure used in developing and administering the budget, as well as the results obtained through its use. Among the important aspects of the problem studied are production schedules, material, labor and manufacturing expense budgets; methods of control for plant and equipment expenditures; comparison of actual and budgeted accomplishment, and incentive systems for securing the latter. The publication is illustrated with reproductions of forms and charts.

Steel framing for residences does not restrict the architect or builder in the scope of design or construction

Convention Calendar

Oct. 23—American Refractories institute. Fall meeting at Traymore hotel, Atlantic City, N. J. Dorothy A. Texter, 2218 Oliver building, Pittsburgh, is secretary.

Oct. 24—American Iron and Steel institute. Semiannual meeting at Hotel Commodore, New York. E. A. S. Clarke, 75 West street, New York, is secretary.

Oct. 24—Rail Steel Bar association. Semiannual meeting at Hotel Commodore, New York. H. P. Bigler, 228 North LaSalle street, Chicago, is secretary.

Oct. 28-Nov. 1—American Institute of Steel Construction. Annual meeting at Carolina hotel, Pinehurst, N. C. Charles F. Abbott, 285 Madison avenue, New York, is executive director.

Nov. 10-11 — American Manganese Producers association. Third annual meeting at Mayflower hotel, Washington. Harold A. Pumpelly, Metropolitan Bank building, Washington, is secretary.

Nov. 12-14—International Acetylene association. Thirty-first annual meeting at Congress hotel, Chicago. A. C. Morrison, 30 East Forty-second street, New York, is secretary.

Nov. 25—Chicago Blast Furnace and Coke association. Annual fall meet- at Chicago. W. C. McKee, By-Products Coke Corp., 108th street and Calumet river, Chicago, is secretary.

Dec. 1-6—National Power show. Ninth national exposition of power and mechanical engineering in Grand Central Palace, New York. Charles F. Roth, Grand Central Palace, New York, is manager.

Dec. 11—American Standards association. Annual meeting at Engineering Societies building, New York. P. G. Agnew, 29 West Thirty-ninth street, New York, is secretary.

Reveal New Aspects of Iron-Carbon Diagram

EVIDENCE indicating that the present concept of the iron-carbon diagram may be somewhat erroneous was contained in several papers presented at the National Metal congress in Chicago, Sept. 22-26, before the American Society for Steel Treating, and one paper heard at a meeting of the two groups of the American Institute of Mining and Metallurgical Engineers. Investigations brought to light some disagreement in the position of the A_{cm} line in the diagram as well as some discrepancies in the temperatures at which critical changes take place. Although results presented appeared authentic, those discussing the papers recommended further research along the same lines before accepted theories are discarded. An interesting paper dealing with the application of gamma rays to radiography pointed the way to new avenues of approach in the location of internal defects in metal parts.

Critical ranges in pure iron-carbon alloys, specifically the A_3 and A_{cm} ranges, and the merging point of A_3 and A_2, formed the basis of a paper by R. H. Harrington, research metallurgist, General Electric Co., Schenectady, N. Y., and W. P. Wood, associate professor of metallurgical engineering, University of Michigan, Ann Arbor, Mich. In carrying out this work Prof. Wood and Mr. Harrington assembled a series of 32 pure iron-carbon alloys and made thermal analyses of them. Carbon contents varied from 0.00 to 1.5 per cent. Heating and cooling diagrams were plotted from data obtained in the thermal analyses, using the inverse rate method of plotting.

Two Steps in Change

Evidence was obtained, according to the authors, that the A_3 change may take place in two steps while the merging point of A_3 with A_2 was declared to occur at about 0.60 per cent carbon rather than at 0.38 per cent carbon shown on most diagrams. Points located in the A_{cm} range furnished as much justification for drawing it in as a straight line as a line having varying slope. Further it was suggested that the A_3 change may take place in two steps, the authors calling the lower temperature change a_3. The A_2 change under given conditions appeared to be located about 20 degrees Cent. lower than on published diagrams, based on cooling curves.

In discussing these rather startling and elemental discoveries, O. W. Ellis, Ontario Research Foundation, Toronto, Ont., suggested that possibly the authors had overlooked the factors of specimen size and shape in making these critical point determinations, accounting possibly for the low A_2 point. R. S. Archer, Aluminum Co. of America, Cleveland, brought out two other factors which might introduce errors into research of this nature. The thermal analyses were made by Harrington and Wood in a modified Rosenhain furnace and in working with this furnace, errors are apt to occur because of mechanical difficulties of furnace operation and also due to discontinuities in the heating and cooling rates resulting from parasite currents in the thermocouple, according to Mr. Archer. He also pointed out that small amounts of oxygen and copper were present in the so-called pure iron with which the authors worked.

Carbides Isolated from Iron

Carbides isolated electrolytically from white iron by flotation in tetrabromoethane consist of two fractions, a magnetic one of a density considerably greater than that of the reagent and a nonmagnetic one lighter than that reagent. The magnetic fraction resembles cementite but differs chemically, while the nonmagnetic fraction bears no similarity to cementite and contains large amounts of oxygen. These points were brought to light in a paper by H. A. Schwartz, manager of research, and G. M. Guiler and H. H. Johnson, members of the research staff, National Malleable & Steel Castings Co., Cleveland. The electrolytic decomposition of manganiferous austenite yields a compound similar in character to the nonmagnetic fraction from cementite though still more strongly oxidized. Demonstration of the absence of oxidation is essential, however, before preparations of this character can be accepted as chemically identical with the carbide phase from which they were derived, according to conclusions reached by the authors.

A recently advanced hypothesis that the iron carbide or cementite precipitated during cooling of hypereutectoid iron-carbon alloys between the eutectic and eutectoid temperatures is not a definite compound of the formula Fe_3C, but is of varying composition furnished the argument for the investigation, "Metastable Equilibrium in Hypereutectoid Iron-Carbon Alloys," by A. Allan Bates and D. E. Lawson, Case School of Applied Science, Cleveland, and H. A. Schwartz, manager of research, National Malleable & Steel Castings Co., Cleveland. Mr. Schwartz, presenting the results of the research, explained that the composition of the two phases of the system, in metastable equilibrium between the eutectoid and eutectic temperatures was determined by a planimetric study of two binary alloys differing in carbon content. While the study confirmed the location of the A_{cm} line, the composition of the carbide phase does not agree with the formula, Fe_3C, above the eutectoid point. An explanation was offered that the disagreement was attributable to a solution of gamma iron in the carbide phase.

Dr. S. L. Hoyt General Electric Co., Schenectady, N. Y., suggested caution in accepting these new theories, pointing out that there was considerable variation and not enough exhaustive detail for the results to be conclusive, O. W. Ellis, Ontario Research Foundation, Toronto, Ont., corroborated the findings to a certain extent by mentioning that other investigators had found discontinuities in the iron-carbon diagram around 900 degrees Cent.

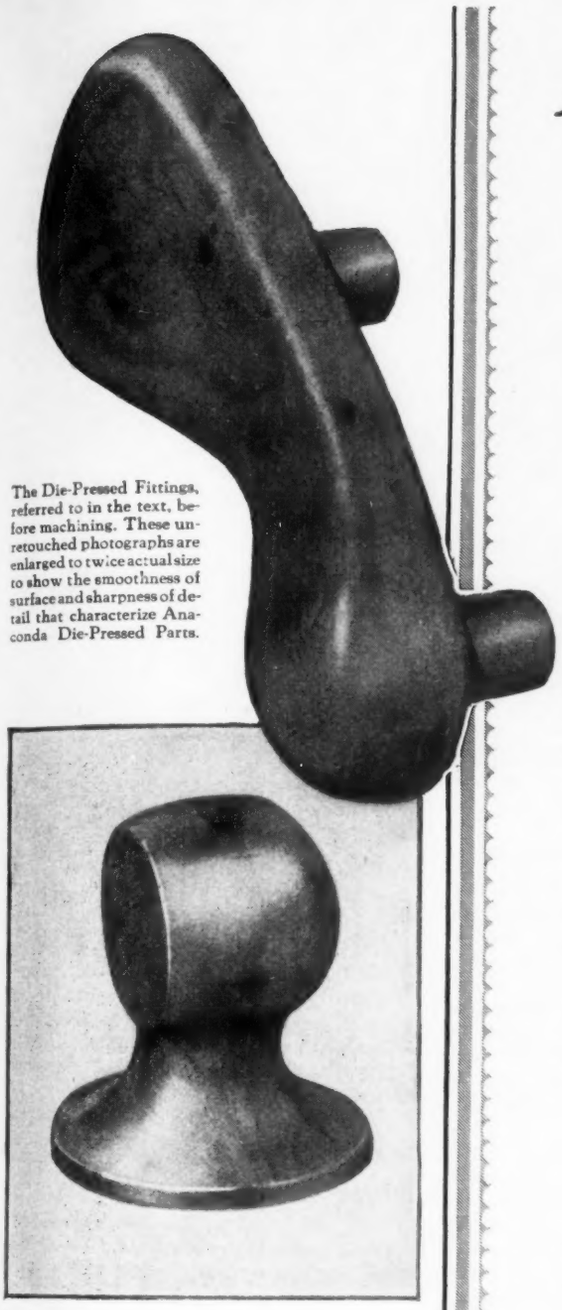
The reaction time for the transformation of austenite to ferrite and carbide at subcritical temperatures may be regarded as the summation of the time factors of two essential effects, "tendency" or "driving force," and ease of transformation or "facility," neither of which is linear with temperature. This information was revealed in a paper presented before the iron and steel and institute of metals divisions of the American Institute of Mining and Metallurgical Engineers, by E. C. Bain and E. S. Davenport, research laboratory, United States Steel Corp., Kearny, N. J. The work of these authors presented results of the study of the time required for this transformation at various temperatures and also the time required for the reaction, austenite to martensite, at the temperatures at which this reaction occurs. In short the work proposed the addition of the time factor to the iron-carbon diagram.

Name Five Constituents

Inspection of the structures resulting from transformation over the temperature range indicated clearly that at elevated temperatures the carbide precipitation is not lagging far behind the allotropic change at any point. In addition to ferrite and pearlite, the appearance of five constitutents was noted, namely, martensite, martensite-troostite, troostite, fine pearlite and pearlite. The constituent sorbite was omitted and fine pearlite was defined as what is often termed nodular troostite.

Satisfactory radiographs of steel castings and forgings the thickness

(*Concluded on Page 64*)



The Die-Pressed Fittings, referred to in the text, before machining. These unretouched photographs are enlarged to twice actual size to show the smoothness of surface and sharpness of detail that characterize Anaconda Die-Pressed Parts.

ANACONDA
from mine to consumer

Further information on Die-Pressed Parts on request, or a representative will call at your convenience. Sample parts showing quality and finish gladly forwarded. Quotations may be secured by sending blue-prints, sketches or models of parts desired, stating quantities.

ANACONDA
DIE PRESSED PARTS
reduce costs 13%
save $3,325 *annually*

A manufacturer producing miscellaneous hardware fittings has found that many of his products can be made at a lower cost with Anaconda Die-Pressed Parts than with brass castings, due to finishing and polishing economies. Although this concern operates its own brass foundry, die-pressed parts are strongly favored for certain items, because—they come truer to size, with smaller burrs—they are free from blow-holes, reducing rejections during finishing—their fine-grained surface is more easily finished and polished.

On two typical fittings this manufacturer reports a 13% cut in production costs, with a total yearly saving of $3,325. The following comparisons, based on two typical cases, are significant:

	POST		EAR FITTING	
	Cast	*Die-Pressed*	*Cast*	*Die-Pressed*
Machining time	Equal		Equal	
Finishing—pieces hour	200	300	200	300
Polishing—pieces hour	60	500	60	500
Rejections in finishing	2-2.5%	None	2-2.5%	None
Costs—Metal and machining	$62.00	$68.00	$48.00	$53.00
Finishing and polishing	17.50	3.00	18.50	3.00
Total per M	$79.50	$71.00	$66.50	$56.00
Saving—per M	$8.50 (10.7%)		$10.50 (15.8%)	
—per year (175M)	$1,487.50		$1,837.50	

These figures, taken from a Nielsen Survey, are representative of the economies which manufacturers in various fields are effecting with Anaconda Die-Pressed Parts. A copy of this survey will be gladly sent on request.

THE AMERICAN BRASS COMPANY
General Offices: Waterbury, Connecticut
Offices and Agencies in Principal Cities
Canadian Mill: ANACONDA AMERICAN BRASS LTD.
New Toronto, Ont.

ANACONDA
COPPER ANACONDA BRASS

Industrial Leaders Speak as New Lehigh Laboratory Is Dedicated

(*Concluded from Page* 26)

ance with the world of affairs. Too often, it is said, they are lacking in these attributes, and also the ability of adequate expression in speech or writing, especially on other than purely technical subjects.

Considering that technical studies make heavy demands on time and energy, Mr. Merrick declared it highly important that an early foundation in the so-called humanities studies should have due consideration in making selection among those applying for admission to technical schools. He believed, too, it would be of much help if a course of lectures could be provided, requiring no work on the part of the student beyond attendance, the speakers being selected for their profound knowledge of the subjects and their ability to present them in a broad gage and interesting manner.

Alfred R. Glancy spoke with equal conviction, when, in declaring there was a greater need for complete grounding in fundamentals, he said cultural subjects should be included among these fundamentals. No matter what he undertakes, a man's success depends upon his salesmanship. This being true, Mr. Glancy declared, it is most important that he acquire the poise and polish that general culture gives him.

School Outlines Objectives

Mr. Merrick expressed the views of others when, in general summary, he said that the school has properly performed its function when it has selected carefully its individuals and has put them in the way of an understanding of the objectives, given a training that will develop their intellectual functions toward the obtaining of these objectives, and instilling in them the desire to go further than any school as such can take them.

Speaking from the standpoint of what technical schools expect of industry were Dr. Arthur M. Greene Jr., dean of the school of engineering, Princeton university, Princeton, N. J.; Dr. Dugald C. Jackson, head of the department of electrical engineering, Massachusetts Institute of Technology, Cambridge, Mass.; David Ross, president of the Ross Gear & Tool Co., Lafayette, Ind., and president of the board of trustees of Purdue university, that city; and Dr. William E. Wickenden, president of the Case School of Applied Science, Cleveland.

One charge against industry was that it was draining from the technical schools outstanding instructors. If industry builds wisely, according to Mr. Ross, adequate provision will be made whereby the brilliant minded instructors in the universities will have rewards and remuneration commensurate with those granted in productive industry. Technical education would gain immensely, he said, if a certain large proportion of the men who have attained recognized superiority in industry were permitted to return to the universities to contribute, as only they can contribute, to the training of new leaders.

This speaker also believed that industry could help greatly in the searching out of fine grade raw material with which technical education must work. Today, he said, technical schools have become too exclusively dependent upon the high schools and other preparatory schools for the preliminary selection of the students planning to pursue technological professions.

Praises Summer Conferences

Dr. Greene pointed to the benefits of the summer conference for engineering professors sponsored by certain large manufacturing companies. He hoped for interest of this character from industry in general. Many smaller organizations could open their plants to teachers for summer experience to the advantage of both industrial organizations and the teachers, he said.

Depicting the difficulties of obtraining proper laboratory equipment with a limited budget allowance, Dr. Greene suggested that the mechanical industries follow the lead of the electrical industries in setting up a deliberate policy of aid, although it may be limited at first. Suggestions by industry relative to the better use of equipment in laboratories would be also helpful, he added.

Engineering schools expect large industrial establishments to pay more attention in their own interest, to the articulation of recent graduates into the industrial work for which they are employed, according to Dr. Jackson. The present practice generally is to few these new employes, he said, into places requiring limited needs, and to make no provision for such employes to gain, except by chance, an understanding of the accomplishments expected of them. He declared that supporting the use in the larger engineering schools of formal curricular enterprises led by engineers from industry, like the senior Colloquia in electrical engineering at Massachusetts Institute of Technology, would serve in improving this situation.

Discussing the relation of industry and technical schools in Europe, Dr. Wickenden said that in both France and Germany scientists prominent in the industrial field work closely with the technical schools, but on a greatly different system. As a result of the system in France that country, he said, has suffered in the matter of research, while Germany has benefited greatly. In fact, the speaker attributed the marked industrial strides in Germany in the present century in no small measure to the form of cooperative research employed.

Great Britain, Dr. Wickenden asserted, is having difficulty in pulling away from tradition. The British schools, however, are doing considable research, although there is not the close link between them and industry as in Germany. Incidentally, he said that graduates from technical schools in Great Britain number about 600 a year, compared with approximately 9000 in the United States.

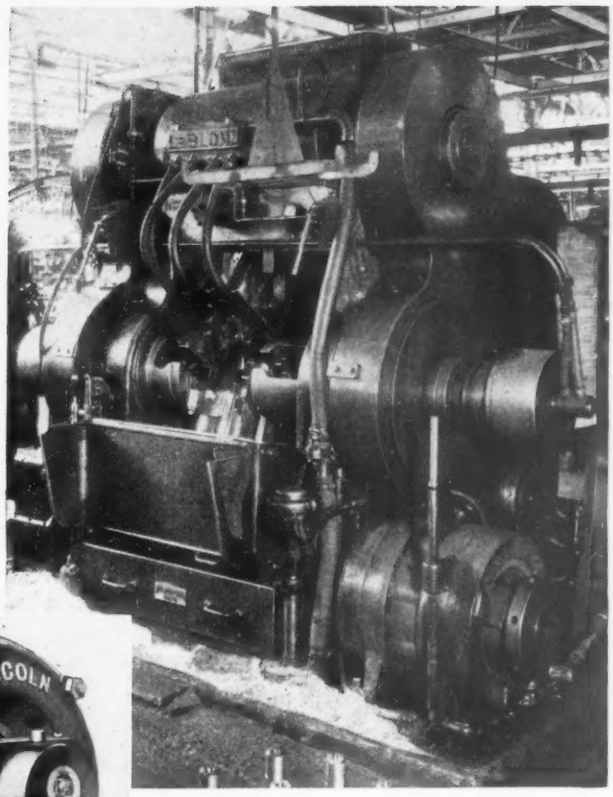
Considering the future needs of American industry, M. W. Alexander, president of the National Industrial Conference board, New York, mentioned the necessity of solving three fundamental problems having to do, respectively, with relations between government and industry, increased productive efficiency, and stabilizing industrial activity by closer co-ordination of productive capacity and consumer demand The task of studying these problems is of such importance, the speaker said, that it in itself constitutes a fourth major problem, namely the systematic collection, analysis and interpretation of basic statistical data necessary to a correct comprehension of industrial conditions.

Cites Wage Earner Data

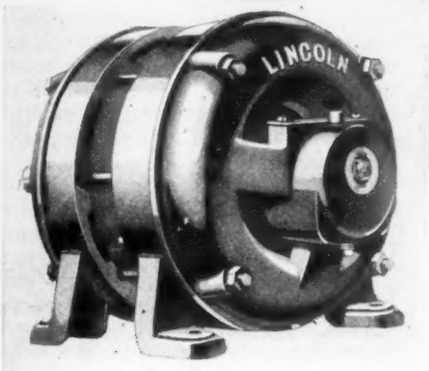
In his discussion Mr. Alexander cited some interesting statistical data. American wage earners, he said, were economically 36 per cent better off in July, 1930, even considering their reduced working time than they were in July, 1914, taking into account the purchasing power of their weekly earnings in the two periods. He attributed this largely to the increase in working efficiency, which has also made possible a marked increase in leisure for American workmen, so that, since 1914, the length of the nominal work week has declined on the average from 55 to 50 hours.

Dr. John Johnston, director of research, United States Steel Corp., Kearney, N. J., traced the growth of industrial research in this country and emphasized its importance to the future advancement of industry. At the beginning of the century, he declared, industrial laboratories in this country were relatively few. In 1910 the number was less than 100. By

TRADITION



PROGRESS



• Le Blond lathe powered by Lincoln "Linc-Weld" motor, in plant of large motor car manufacturer. •

"YOU'LL be glad to know that the order has finally been placed for the big new machines. It has taken a long time to decide which make was best for our purpose but now all that remains is the simple matter of ordering some motors to drive them and we'll be all set."

"That's one way of looking at it . . . care on machine selection and *don't care* on motor choice.

That's the way one motor car builder looked at it until motor shutdowns called his attention to some things.

They tried out a 'Linc-Weld' motor on a Le Blond lathe for turning crank shafts.

Since then there has been no forced shutdowns on this lathe.

For more than a year the 'Linc-Weld' motor has been stopped and started 17 times every working hour . . . and HOW.

When they stop the motor, they STOP it . . . for as soon as the turning operation is completed, the motor is automatically thrown into the reverse direction to stop it.

Did I hear you say 'Magical results'? Not at all. 'Linc-Weld' is built for that service. No magic to it . . . just superior design (on three counts) and superior construction of STEEL."

THE LINCOLN ELECTRIC COMPANY
DEPARTMENT NO. 20-10 ✧ CLEVELAND, OHIO

M-77

LINCOLN
"LINC-WELD" MOTORS

1921, however, the number was in excess of 500, the rate being greatly accelerated by demands occasioned by the World war. In 1927 there were about 1000 laboratories with an aggregate number of employes of more than 20,000. Today it appears reasonably certain, he said, that there are approximately 1500 laboratories, with an even greater increase, relatively, in the number of employes. Employes at the various laboratories vary from a relatively small number up to 5000.

The annual cost of an industrial research laboratory, Dr. Johnston said, averages between $4000 and $5000 for each employe, counting everyone down to and including the clerical and custodian forces. Of this amount approximately two-thirds is for salaries and one-third for all other items, such as rent, equipment, apparatus, power, etc. On the foregoing basis he estimated the annual expenditure at more than $100,000,000 in 1927, with the present expenditure substantially bigger.

Value Is Revealed

That industrial laboratories have proved most profitable is indicated, he said, by the fact that average returns from 100 to 300 per cent of cost, this range tending to increase with the age of the laboratories. He cited one instance where a large company, after careful analysis, concluded that direct returns from its research work were 10 times the cost, over a period of years, to say nothing of the indirect returns which undoubtedly amounted to a considerable sum. Dr. Johnston mentioned several of the more outstanding recent achievements made possible by systematic research, and pointed out that some of the industries which in recent years have been making the poorest return on the capital invested, such as the coal industry, the textile industry and the railroads, have so far done little research.

Edward A. Filene, president and chairman of the board of William A. Filene's Sons Co., Boston, spoke of the importance of more effective distribution of the future development of industry, and S. L. Andrew, chief statistician, American Telephone & Telegraph Co., New York, discussed methods of industrial and business forecasting.

Reveal New Aspects of Iron-Carbon Diagram

(*Concluded from Page* 60)

of which exceeds that now possible for satisfactory X-ray pictures are possible by means of gamma-ray radiography, if a sufficient source of gamma rays be provided. This statement was propounded in a paper presented by Robert F. Mehl, superintendent, and Charles S. Barrett, assistant physicist, division of physical metallurgy, Naval Research laboratory, Washington, and Gilbert E. Doan, assistant professor of metallurgy, Lehigh university, Bethlehem, Pa. These three metallurgists recently investigated the possible uses of gamma rays for the detection of defects in metallurgical materials.

Through 10 Inches of Steel

According to their tests, Mr. Mehl reported that radiographs with gamma rays were taken with some degree of success through 10 inches of steel. The use of gamma rays has many inherent advantages over the use of X-rays. Radium or radium emanation is the source of gamma rays and although the emission of the rays cannot be controlled, nevertheless no high voltage equipment is necessary and gamma rays are found to have a satisfactory sensitivity to small defects.

Answering questions brought up in the discussion of the paper, Mr. Mehl suggested that laboratories could co-operate with hospitals in the use of radium or radium emanation, since radium is active continually and usually hospitals have no need for the substance during the night. In the experiments outlined in the paper 4 grams of radium was the amount used; however, Mr. Mehl cited figures indicating satisfactory results from smaller amounts, specifically, 1 gram, or 250 millicuries. With this amount of radium, using two filters and three lead enhancing screens in the setup and placing the object to be radiographed 18 inches from the emanation the following exposure times are suitable.

To register a 2-4 per cent defect, that is, 2 to 4 per cent of the volume of the object:

Object thickness, inches	Exposure, minutes
1½	12
2⅜	36
4	4 hours

To register a 5-8 per cent defect in the object:

Thickness, inches	Exposure, minutes
1½	7
2⅜	18
4	1.3 hours

Engineers Discuss Cause and Cure of Depressions

(*Concluded from Page* 56)

does not help the morale of those out of work. Mr. Lansburgh suggested that the society start an active research campaign covering the unemployment situation.

The Soviet government came up for discussion at the annual dinner which was held Thursday night. This dinner was in the nature of a testimonial to Harrington Emerson, New York, founder of the efficiency movement. Present at the dinner to honor Mr. Emerson were consular or diplomatic representatives from China, Japan, France, Czechoslovakia, Germany and Poland. Mr. Emerson gave a broad technical discussion of the problems of industry and described a recent investigation which he made in Russia. He said the Russian government today is one of the most stable in the world and is forging ahead with a rapidity that fills the outside world with surprise and alarm. No unemployment exists in the Soviet republics because the Soviet solution eliminates unemployment. When they have solved the problem of creating and operating modern power-driven plants, the hours of labor may be reduced and yet a high daily compensation maintained.

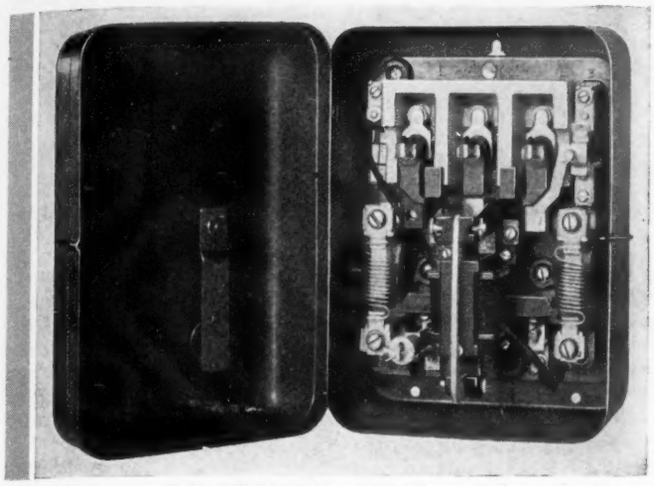
Cites Reason for Depressions

Zay Jeffries, consulting engineer, lamp department, General Electric Co., Cleveland, speaking Friday afternoon, said that our depressions were due in part to the swing of the pendulum, first too far in one direction and then too far in the opposite. He stamped this as a human trait and doubted if it ever could be altered, but concluded much could be done to overcome the serious effects. He stated we have adjusted to a slump to almost no productive work over weekends and in the same way we should be able to adjust to the comparatively slight decline in activity which occurs at fairly regular intervals and which causes our depression.

Alvan T. Simonds, president, Simmonds Saw & Steel Co., Fitchburg, Mass., presented a paper covering the economic situation with relation to industry. He said that the most important remedy for wide fluctuations in business is education and advised special attention to study of national trends and the scheduling of operations. He emphasized that major swings in business can be forecast many months in advance. Each is preceded by from nine to 18 months by a corresponding major swing in money rates reversed.

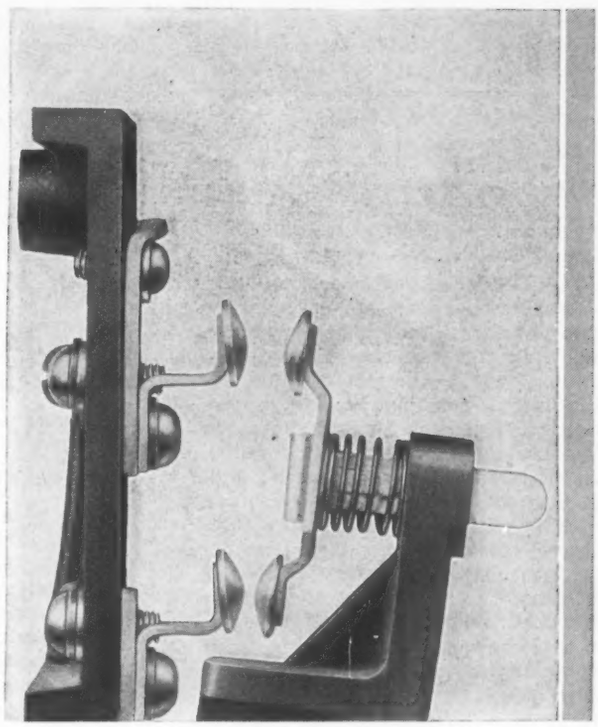
Other speakers at the convention included Dr. George K. Burgess, director, bureau of standards; Dr. A. F. Woods, director of scientific work, department of agriculture; Dr. W. L. Cooper, director, bureau of foreign and domestic commerce; Frederick H. Payne, assistant secretary of war, Washington, and Walter Rautenstrauch, consulting industrial engineer, New York. Mr. Rautenstrauch said that the first essential to raising the general level of profit-making is a full and complete knowledge of the ecenomic characteristics of the particular business. The second essential is the budget and the third factor deals with the personnel and its purpose.

NEW CR7006 Magnetic Switch with "UMBRELLA" CONTACTS



The new G-E CR7006-D40 magnetic switch made in ratings up to 3 hp. 110 volts, 5 hp. 220 volts, and 7½ hp. 440 and 550 volts

CONTACTS of heavy, fine silver, umbrella-shaped to suppress the arc, contribute to the high interrupting capacity and long life of this new, small, magnetic switch—the CR7006-D40.



Detail of contacts. (Full size) Barriers removed

Four other noteworthy features of this new motor starter:

1. **Exceptionally heavy spring pressure allows the switch to be used successfully under conditions of severe vibration and assures freedom from sticking and welding at contact tips.**

2. **Compact construction provides ample wiring space.**

3. **Accessibility of parts permits easy inspection and replacement.**

4. **New thermal overload relays closely follow the motor-heating curve, providing for maximum protection and minimum shutdown.**

The new CR7006-D40 is a heavy-duty switch—husky and well built throughout. May we send you descriptive literature? You will find it interesting.

JOIN US IN THE GENERAL ELECTRIC PROGRAM, BROADCAST EVERY SATURDAY EVENING ON A NATION-WIDE N.B.C. NETWORK

301-63

GENERAL ELECTRIC

SALES AND ENGINEERING SERVICE IN PRINCIPAL CITIES

Scanning the Technology of Steel

A Digest of Important Developments in Scientific Research, Engineering Progress and Operating Procedure Pertaining to the Production, Processing, Application and Performance of Steel

USES:

Bessemer Steel

Characteristics, properties and uses discussed by J. R. Miller, in Blast Furnace and Steel Plant, October 1930, *p.* 1602, 1 *table.*

Three special qualifications that adapt bessemer steel to special uses are: Greater stiffness and higher tensile strength with the same carbon content, which allows of certain advantageous combinations of properties; an easy machinability that is combined with other special qualities not so combined in other steels; and, high quality of weldability combined with strength and free cutting to a degree considerably greater than welding steel in the open-hearth grades. It is necessary to give careful consideration to the application of bessemer steel to the various purposes for which it is adapted and to be sure it is applied only where it will fulfill the requirements. The author tabulates 73 purposes for which open-hearth and bessemer steel are used, giving the section and size of each application and the analysis of the principal grades.

—STEEL 10-23-30

Oil Electric Locomotives

Application of the oil electric locomotive and the fundamentals of engine design discussed by A. H. Candee, in Iron and Steel Engineer, September 1930, *p.* 461, 5 *pp.*, 4 *illusts.*

The engine must not be over 7 feet high in order to be installed in a cab and preferably should be less than this to permit the removal of the cylinder heads and pistons without removing the locomotive roof. The type of engine suitable for locomotive purposes is the high-speed engine. The weight of pistons and connecting rods is of prime importance where relatively high reciprocating speeds are employed. Torsional critical speeds must be avoided. Engines must be governed with an overspeed and an idling speed governor. Details involved in the assembly of the component parts of a locomotive are presented by the author. The average savings in steel mill service effected by oil electric locomotives include a reduction of fuel expense to one fifth of coal, no water expense, elimination of a fireman, repair expense reduced to one half, and engine house expenses minimized.

—STEEL 10-23-30

FABRICATION:

Steel Forging Design

Production and heat treating of steel forgings, discussed by L. H. Fry, in Machine Design, October 1930, *p.* 27, 4½ *pp.*, 7 *illusts.*, 2 *tables.*

With a given quality of steel and with equal care in heating and in the rate of reduction it will be immaterial to the quality of the billets whether they are produced from the ingot by rolling, pressing or by hammer forging. The amount of reduction and the rate at which it is carried out both have considerable effect on the properties of the forging. The proper amount of reduction to be given between ingot and forging will depend on the kind of stresses to which the forging is to be subjected. If too light a hammer is used for a large forging the flow of the metal may be concentrated too much on the outside of the steel. On the other hand, a powerful press, if used too brutally, may cause internal ruptures in the steel. The heat treating of forgings is discussed by the author.

—STEEL 10-23-30

Enameling Cast Iron

Wet process of vitreous enameling cast iron discussed by C. D. Clawson, in American Machinist, Oct. 9, 1930, *p.* 579, 2¾ *pp.*, 3 *illusts.*

Castings to be enameled by the wet process must be thoroughly cleaned. Sandblasting is the most effective method. Better results and greater economy are obtained by applying one or two coats directly on the casting rather than applying a ground coat. After the enamel has been sprayed, it should be dried as rapidly as possible to keep rusting at a minimum. In burning sufficient time should be allowed to bring the entire mass to a uniform temperature. If the time in the furnace is too short, the enamel will not fuse properly over the lugs and heavier sections of the castings.

Production of enameled cast-iron parts can be increased by the finishing of a large percentage of ware with only one application of enamel. Pitfalls to be avoided in the application of one-coat finish include: 1. Uneven spraying, corrected by proper instruction. 2. Tearing or cracking of the enamel when burned due to too heavy spraying or the use of an enamel containing too much water. 3. Blisters over the lugs and uneven sections resulting from improper burning.

—STEEL 10-23-30

PRODUCTION:

Furnace Atmospheres

Influence of atmospheres on correct heat treatment discussed by E. W. Esslinger, in Metal Progress, October 1930, *p.* 60, 4 *pp.*, 4 *illusts.*

The prime requisite for all heat treating operations is a properly constructed furnace. The size and design of this furnace depend upon the pieces to be treated and the temperatures required. In a good fuel-fired furnace proper atmosphere and regulated temperatures are secured by a rigid control of combustion and a common fuel. Gaseous fuels require an accurate control of the quantity of air to be supplied for complete combustion and the control of the air is also a function of the chemical and physical characteristics of the combustible gaseous fuels.

Between 1600 and 1800 degrees Fahr. free oxygen causes less scale than carbon dioxide. A mixture of carbon dioxide and carbon monoxide produces the greatest amount of scale. It is possible to improve the operating efficiency of a fuel-fired furnace by using a large number of small burners rather than by using only a few. To control combustion it is essential to select burners which will produce and maintain definite proportioning of the gaseous fuel and the air over long periods of time.

—STEEL 10-23-30

Machine Tools and Plant Equipment

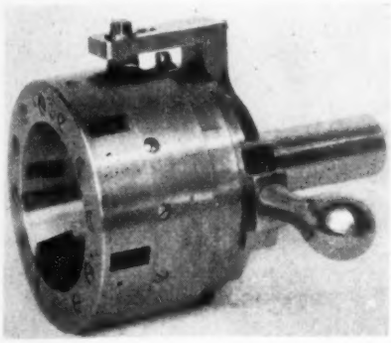
"Without machine tools modern machinery could not be built."

—Joseph W. Roe

Threads of Large Diameters Cut by New Die Head

Eastern Machine Screw Corp., New Haven, Conn., has added to its line a light-duty die head which has been especially designed for cutting threads of large diameters where the pitches are relatively fine. This die head, shown in an accompanying illustration, has a diameter from 2 to 3 inches in pitches not coarser than 10 and for lengths not over 2¼ inches.

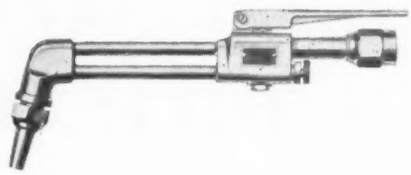
The head has six chasers in a set



Light-duty die head is especially designed to cut large diameter threads

while the chaser cams, solidly supported by the body, engage diagonal slots in the chasers that not only support them directly over the cut but also serve to open them in a positive manner without individual springs. The die head has a detachable shank which can be supplied in various diameters. The length of thread adjustment is carried on an arm from the shank. Adjustment for pitch diameter is by means of a micrometer screw on the front face which allows adjustments for length of thread and for pitch diameter to be made with rapidity and ease.

The new head weighs only 21 pounds as against over 40 pounds for a regular 3-inch die head. Its outside diameter is 5¾ inches with an overall, not including shank, of 4-7/16 inches. The chasers are removed radially by simply depressing a stop plunger. A friction device that holds the chasers in place adds to the ease of installing them. The



Long handle on cutting attachment permits more precise control of oxygen

die head has ample float and this together with its lightness makes it especially suitable for threading the softer metals where the threads are short and of fine pitch.

◆

Blowpipe Accessories Aid Cutting Operations

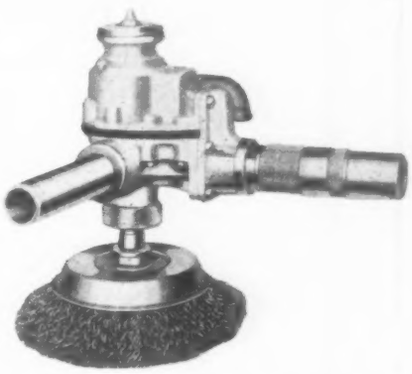
Oxweld Acetylene Co., New York, has developed new accessories for its welding blowpipe, introduced some time ago, which now make this blowpipe capable of performing almost any type of work which might be required of an oxy-acetylene tool.

A new cutting attachment which differs radically from any such attachment which has previously been manufactured, enables the blowpipe to do a reasonably wide range of cutting work. In the accompanying illustration, the long handle which is used for operating the cutting oxygen valve can be clearly seen. When this handle is not in use, it can be pulled forward parallel to the tubes so that the whole attachment may be carried around in the operator's pocket. The attachment has the same style stem lock nut as the welding head for the blowpipe. The injector for the heating flames is contained in the attachment, just as the injectors are contained in the welding heads.

At the rear is an adjusting screw, so that the oxygen for the heating flames may be regulated by the operator's thumb and forefinger while the blowpipe is in operation. The attachment is joined to the blowpipe handle in exactly the same manner as a welding head, that is, the lock nut can be tightened by hand. The attachment is supplied with two cutting nozzles.

Another accessory which has just been introduced for use with the blowpipe is an adaptor which makes it possible to use any of the welding heads available for the sheet metal welding blowpipe.

This means that this model may be used on work ranging from the lightest type of welding to the heavy general welding work required of such equipment. The end of the adaptor which fits onto the blowpipe handle is similar to the rear end of a new type welding head. The adaptor contains passages for the oxygen and acetylene which fit tightly against the passages in the handle of the tool.



Air operated tool can be adapted to a variety of uses in steel industry

New Air Tool Is Adaptable to Many Operations

Rotor Air Tool Co., Cleveland, has introduced an air operated tool which is entirely new to the pneumatic tool industry. This tool, shown in the accompanying illustration, is adaptable to a variety of uses. With cupped brush, it is used for cleaning rust, paint and scale from tanks and steel cars, pipes and pipe lines, steel beams, etc., and for removing sand from castings.

With pad and disks, one of the chief uses of the tool is for mechanically rubbing filler on castings, preparatory to painting, an operation which is usually done by hand. This tool does the same work in a shorter time, and can likewise be used for light sanding operations on either metal or wood. It can be used with various other types of

BASI
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THE CHEMICA

PATENT NUMBER:	1,316,817
INVENTOR:	Benno Strauss
EXPIRATION DATE:	September 23, 1936
TITLE OF PATENT:	Articles which require high resistance against corrosion.

PATENT NUMBER:	1,339,378
INVENTOR:	Benno Strauss
EXPIRATION DATE:	May 4, 1937
TITLE OF PATENT:	Objects having great strength and great resistance against the action of acids.

Availability of these patents to American industry, by n extensive research by American manufacturers, has resulted in the p ranges specified in these patents. These alloys are available for t and objects having great strength and great resistance against the acti license from us fully protects users of the

THE CHEMICA

Chartered for the Advancement of Chemical and Allied Scien

654 MADISON AV

PATENTS
NICKEL STEEL ALLOYS
CONTROLLED BY
FOUNDATION, INC.

Patent No. 1,316,817 covers:

Claim 1. Articles which require a high resistance against corrosion said articles being made from a steel alloy containing 6% to 25% chromium, 20% to ½% nickel and not over 1% carbon, the proportion of chromium increasing as the proportion of nickel decreases and vice versa.

Claim 2. Articles with a high resistance against corrosion which require to be unmagnetic, said articles being made from a steel alloy containing 8% to 25% chromium, 20% to ½% nickel and not over 1% carbon, the proportion of chromium increasing as the proportion of nickel decreases and vice versa.

Patent No. 1,339,378 covers:

Claim: Articles having great strength and great resistance against the action of acids, said articles being made from a steel alloy containing from 15% to 40% chromium, 20% to 4% nickel, not over 1% carbon and not less than 55% iron.

exclusive license from The Chemical Foundation, Incorporated, and duction of steel alloys containing chromium and nickel within the manufacture of articles which require high resistance against corrosion of acids, and must be purchased from one of our licensees, whose alloys against all claims for infringement.

FOUNDATION, INC.

and Industry in the United States without Profit to Itself

NEW YORK, N. Y.

FRANCIS P. GARVAN,
President

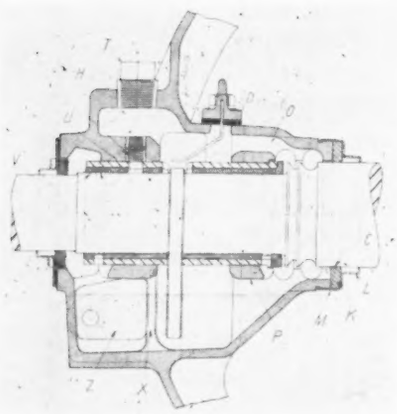
equipment for duco rubbing and polishing on automobile bodies, for finishing stone and concrete, for nut setting and for close-quarter small drilling.

The tool weighs only 6 pounds and is furnished in three speeds of 2000, 1500 and 1000 revolutions per minute.

◆

Sealed Sleeve Bearing Is Effective on Motors

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has developed a sealed sleeve bearing for industrial



Design of sealed-sleeve bearing shuts out foreign matter

motors. The accompanying illustration shows a sectioned assembly of this bearing. The design not only effectively prevents foreign matter from entering the bearing, but it also prevents the escape of lubricating oil to the insulating surfaces within the motor.

Provides Adequate Support

The bearing is designed to provide adequate support, and the method of sealing is just as simple as it is effective. At the outer end of the housing a soft felt washer surrounds the shaft, being held in place by a pressed steel ring with an overhanging lip with small running clearance over the shaft. This combination is effective in retaining the oil and excluding dirt. The inspection hole is closed by a screw plug and the slot for inserting the oil ring is closed by an oil-tight cap held in place by screws. Air pressure between chambers of the housing is balanced by a cored channel, and an annular pressure relief groove in the bearing near its outer extremity prevents the squirting of high-pressure oil through the space between bore and shaft.

The lower portion of the housing serves as an oil reservoir in which the ring which carries the oil to the bearing dips. The reservoir is of generous size, which encourages the settling of sediment as well as insuring constant lubrication. The design has proved its worth by efficient operation in such unfavorable places as cement mills.

◆

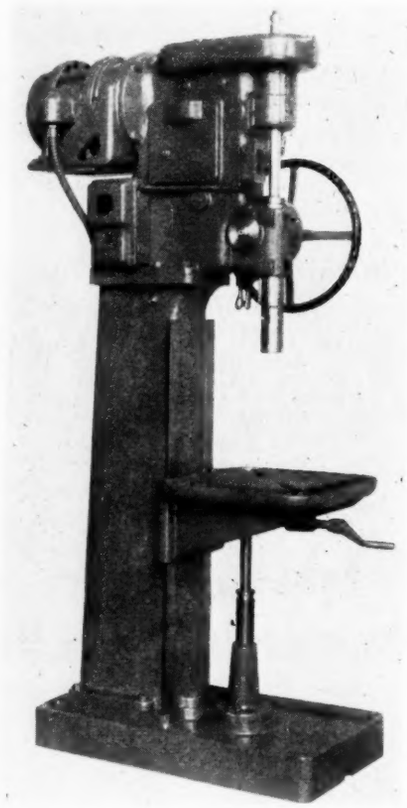
Geared Head Drill Has Wide Speed Range

Barnes Drill Co. 814 Chestnut street, Rockford, Ill., has introduced an all geared drilling and tapping machine of 1-inch capacity designed to meet the demands of production work. This machine, an illustration of which appears herewith, has 20-inch swing. With spindle speeds ranging from 69 to 1296 revolutions per minute it drives high speed steel twist drills ranging from ⅜ to 1-inch in diameter to their maximum allowable speed.

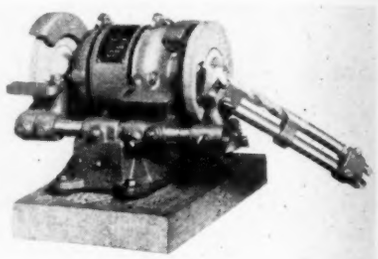
The pickoff gears controlling speed and feed can be quickly and easily changed because they are held in place by the cover of the gear box. They are carried on six-spline shafts. Spur gears only are used, there being no worms or worm gears in the design. They are of alloy steel heat treated and are fully enclosed, thereby meeting safety laws.

Antifriction Bearings Used

Antifriction bearings are used throughout the machine, both taper roller and ball type being employed. These bearings are self oiled. All controls are conveniently located, a large handwheel for controlling the feed being located on the right-hand side of the head. The table is of rigid construction and also gives ample room for work. The machine is driven direct by a motor mounted on the head and minimum of floor space is required. Special mechanism providing accurate power lead tapping can be provided at extra cost.



Production work easily accommodated on all-geared drilling machine



Bench grinder can be converted into a twist drill grinder

Drill Grinding Attachment Improves Tool Efficiency

Wappat Inc., division of Simonds Saw & Steel Co., 7522 Meade street, Pittsburgh, has put on the market an atfachment for its motor-driven bench grinder which converts this tool into an effective twist drill grinder. This device, illustrated herewith, accommodates two-lip twist drills from the smallest up to those 13/16-inch in diameter. Adjustments are provided for various diameters and for various clearances which may be encountered when grinding drills.

The grinder to which this device is attached is ball bearing equipped and runs in perfect balance. Rubber feet contribute further to quiet, vibrationless operation. The outfit, it is claimed, enables an unskilled workman to sharpen drills according to approved standards, faster and better than a skilled mechanic can do it by hand. At the same time the properly ground drills last longer and do better and faster work.

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Railroads Buy, but for 1931 Rolling

Only Structurals Provide Good Current Demand—Operations Steady at 52 Per Cent—Scrap Prices Break Badly—Pig Iron Weaker in Valley—Less Ore Used

RAILROAD participation in the steel market is expanding, but so large a proportion of these requirements is for 1931 delivery and so inert are other large consumers of steel except the building industry, that bookings for immediate rolling show a mild decline this week.

Sentiment has suffered further depression, chiefly from exterior forces. Steelmaking operations have varied in some districts, but the average for the industry still is 52 per cent. Prices on heavy finished steel are fairly stable, on light finished steel and pig iron variable, and on scrap the weakest in months.

Rail orders of the week include 45,000 tons by the Union Pacific, 10,000 tons by the Boston & Maine and 8000 tons by the Kansas City Southern. Some 280,000 tons of rails will be on active inquiry by the end of this week if the New York Central requirement for 175,000 tons eventuates. The Erie is out for 40,000 tons, the North Western inquiry will approximate 30,000 tons and the Illinois Central 35,000 tons. Chesapeake & Ohio has begun placing track fastenings.

Decision of the Baltimore & Ohio to build 2000 freight cars in its own shops—half of them at Baltimore—insures October being the heaviest car-buying month since March. Reports persist at Chicago that the Santa Fe will shortly be in the equipment market and that the Illinois Central will revive its inquiry for 2300 cars after Jan. 1.

Structural awards, still stimulated by low fabricated prices, this week were 47,371 tons, against 56,759 tons last week and 67,751 tons a year ago. For 1930 to date structural awards now stand at 1,551,958 tons; a year ago 1,803,061 tons. Steel for the Chicago postoffice, which is being agitated for early construction, totals 20,000 tons. New subway work in New York, 9700 tons, makes 27,200 tons in early prospect from this source. Fresh inquiry is lighter this week.

For the Baltimore & Ohio cars 20,000 tons of steel, chiefly plates, will be required. An airplane carrier placed by the navy with the Newport News builder calls for 9750 tons of steel, two-thirds of it plates. New West Texas refinery projects add 3000 tons of tank plate inquiry at Chicago, where bar specifications have been mildly improved by resumption of some implement manufacturers.

In wire, sheets and strip much of the momentum of the past few weeks has been lost. Automotive requirements have not expanded, and demand from other classes of users is less. Autobody sheets have been shaded $2 per ton, to 3.40c, Pittsburgh, by some makers. In some directions a 2.35c price on black sheets obtains. In sheets, as in most other products, Chicago is an exception to the declining tendency in demand.

Practically all districts report lessened interest in pig iron, as most fourth-quarter needs were covered during the September buying flurry. Bessemer and malleable iron are off 50 cents in the Mahoning valley, continuing the recent weakness in foundry iron. Cleveland district furnaces have dipped to $15.50 in competitive territory. Except for heating fuel sales, coke is dull. Distress sales, short selling and choked yards of consumers have let down scrap prices 25 cents to $2 a ton this week, the worst break in many months.

Lake shippers of iron ore are endeavoring to end the season next month. September consumption, at 3,281,573 tons, was the lowest for any month since September, 1924.

Steel production at Chicago is a shade stronger this week at 58 per cent, at Buffalo at 57, and at Birmingham at 50. Youngstown mills are steady at 53 per cent, eastern Pennsylvania at 58 and Pittsburgh at 50-55. Cleveland at 35 per cent is off six points. For the entire country, last week's average of 52 per cent still stands.

Weakness in pig iron at Youngstown and in sheets has lowered the market composite of STEEL 10 cents this week, to $32.14, another new low.

Composite Market Averages

Based on Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe.

This week (Oct. 22, 1930)	**$32.14**
Last week (Oct. 15, 1930)	**32.24**
One month ago (September, 1930)	**32.65**
Three months ago (July, 1930)	**33.21**
One year ago (Oct. 1929)	**36.23**
Ten years ago (Oct. 1920)	**68.61**

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	Oct. 22, 1930	Sept., 1930	July, 1930	Oct., 1929
PIG IRON				
Bessemer, del. Pittsburgh	$18.76	20.13	20.46	20.76
Basic, valley	17.00	17.75	18.20	18.50
Basic, eastern del. eastern Pa.	17.50	17.90	18.00	19.75
No. 2 foundry, del. Pittsburgh	18.26	19.13	19.46	19.76
No. 2 foundry, Chicago	17.50	17.50	17.90	20.00
*Southern No. 2, Birmingham	14.00	14.00	14.00	14.00
**No. 2X, Virginia furnace	18.25	18.25	18.25	18.25
**No. 2X, Eastern del. Phila.	19.26	19.76	20.26	22.26
Malleable, valley	17.50	18.35	18.70	19.00
Malleable, Chicago	17.50	17.50	17.90	20.00
Lake Superior, charcoal, del. Chi.	27.04	27.04	27.04	27.04
Gray forge, del. Pittsburgh	17.63	18.50	18.83	19.13
Ferromanganese, del. Pittsburgh	103.79	103.79	103.79	109.79

*1.75 to 2.25 silicon. For local delivery. Northern shipments based on $12 to $13, Birmingham. **2.25 to 2.75 silicon.

COKE				
Connellsville furnace, ovens	2.60	2.60	2.50	2.65
Connellsville foundry, ovens	3.50	3.50	3.50	3.75
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngs.	31.00	31.00	31.00	35.00
Sheet bars, open-hearth, Pitts.	31.00	31.00	31.00	35.00
Billets, open-hearth, Pittsburgh	31.00	31.00	31.00	35.00
Wire rods, Pittsburgh	36.00	36.00	36.00	40.00

	Oct. 22, 1930	Sept., 1930	July, 1930	Oct., 1929
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.60	1.60	1.70	1.90
Steel bars, Chicago	1.70	1.70	1.80	2.05
Steel bars, Philadelphia	1.89	1.89	1.94	2.22
Iron bars, Chicago	1.75	1.75	1.90	2.05
Shapes, Pittsburgh	1.60	1.60	1.65	1.95
Shapes, Philadelphia	1.76	1.66	1.66	2.01
Shapes, Chicago	1.70	1.70	1.75	2.05
Tank plates, Pittsburgh	1.60	1.60	1.65	1.95
Tank plates, Philadelphia	1.80½	1.80½	1.85½	2.15
Tank plates, Chicago	1.70	1.70	1.75	2.05
Sheets, blue anl., No. 13, Pitts.	2.15	2.10	2.15	2.35
Sheets, black, No. 24, Pitts.	2.40	2.40	2.55	2.80
Sheets, gal., No. 24, Pittsburgh	3.00	3.00	3.15	3.50
Sheets, black, No. 24, Chicago	2.60	2.60	2.70	3.05
Sheets, blue anl., No. 13, Chicago	2.30	2.30	2.30	2.50
Sheets, galvanized, No. 24, Chi.	3.15	3.25	3.35	3.70
Plain wire, Pittsburgh	2.30	2.30	2.30	2.40
Wire nails, Pittsburgh	2.00	2.00	2.10	2.45
Tin plate, per base box, Pitts.	5.00	5.25	5.25	5.35
SCRAP				
Heavy melting steel, Pitts.	14.50	15.70	14.90	17.30
Heavy melting steel, eastern Pa.	12.50	13.00	12.50	15.80
Heavy melting steel, Chicago	11.00	12.25	12.00	14.45
No. 1 wrought, eastern Pa.	14.25	14.25	14.25	16.00
No. 1 wrought, Chicago	10.65	11.25	11.25	14.85
Rails for rolling, Chicago	13.50	14.50	14.50	17.05

Sheets

Autobody Sheets Reduced $2 a Ton by Some Ohio Mills—General Market Easier—Sales Slow

SHEET PRICES, PAGE 75

Youngstown, O.—While there has not been a seasonal expansion in demand for autobody sheets, a somewhat wider distribution of sheets to other consuming industries is noted, so that district independent mills continue to operate on an average of 50 per cent. Shipments indicate stocks in consumers' hand are light. Autobody sheets are expected to become more active in the next few weeks. Common black sheets are 2.40c to 2.45c, Pittsburgh, blue annealed 1.90c to 2.00c for Nos. 9 and 10 gage, and 2.15c for No. 13. Galvanized sheets hold at 3.10c. Autobody are unchanged at 3.50c.

New York—Sheet buying is spotty and for immediate shipment. Prices are unchanged, black holding at 2.40c to 2.45c, base, Pittsburgh; galvanized 3.00c; blue annealed plates 1.90c to 2.00c, and blue annealed sheets 2.05c to 2.15c.

Philadelphia — Sheet prices are weak and common black may now be obtained at 2.35c to 2.45c, base, Pittsburgh. Galvanized generally are 3.00c, but this price is shaded occasionally. Blue annealed are fairly firm at 2.00c for heavy gages and 2.15c for light. Some makers occasionally sell the heavy gages at 1.90c. The anthracite coal industry is buying more sheets, and jobber automotive plants also are taking more.

Pittsburgh—Sheet specifications are light, lacking improvement over tonnage of recent weeks, and interest in forward coverage has subsided. Mill operations are a shade higher but the general average still is about 50 per cent. Prices continue unsteady. The usual price of black sheets remains 2.45c, with larger tonnages going at less. Galvanized sheets are 3.00c to 3.10c and blue annealed 1.90c to 2.00c for 10 gage. Autobody sheets bring 3.50c. Antomotive tonnage continues lighter than a month ago.

Cleveland—A precipitate drop in sheet specifications occurred in the past week. After five or six weeks of consecutive gains tonnage has declined in most if not all consuming lines. An effort was made to stimulate autobody demand by cutting the price $2 a ton to $3.40c, Pittsburgh, but without much success. Some mills still quote 3.50c. Metal furniture sheets are held at 3.60c, but in some quarters are expected to follow autobody downward. While one or two Ohio mills quote 2.45c for black sheets, others openly offer 2.35c. The metal door contract for a large Los Angeles hospital, amounting to $420,000, went to Metal Door & Trim Co., Laporte, Ind.

Cincinnati—Production of sheet mills in this district is comparable to preceding weeks of October, and will show considerable increase in tonnage over September. Mills have not yet issued quotations for the first quarter.

Chicago—Gradual improvement is shown in sheet specifications. Jobber, roofing and manufacturing lines are contributing to heavier galvanized and black sheet business, while blue annealed is maintaining its activity of the past several weeks. Sheet mill operations have gained about 5 points, the rate being 55 to 60 per cent. Continued pressure of buyers and the weak zinc market are resulting in quotations of 3.10c to 3.20c, mills, for No. 24 galvanized, this being a drop of about $1 a ton.

St. Louis—Sheet specifications are on a hand-to-mouth basis. Galvanized and blue annealed are holding the improvement noted toward the close of September. Prices are steady.

Birmingham, Ala.—Demand for sheets is improving and mills are increasing output slightly. Backlogs are reported better than in several weeks.

September production of range boilers was 44,597 units compared to August's 33,901, according to the department of commerce.

Current Finished Steel Prices

Prices in cents per pound unless otherwise stated

Steel Sheets

SHEET MILL BLACK, NO. 24

Pittsburgh base	2.35c to 2.45c
Philadelphia, delivered	2.64c to 2.74c
Gary, Indiana Harbor	2.55c
Chicago, delivered	2.60c
Birmingham, base	2.60c to 2.65c
St. Louis, del.	2.80½c

TIN MILL BLACK, NO. 28

Pittsburgh, base	2.70c
Gary, base	2.80c

GALVANIZED NO. 24

Pittsburgh, base	3.00c to 3.10c
Philadelphia, delivered	3.29c
Gary Indiana Harbor	3.10c to 3.20c
Chicago, delivered	3.15c to 3.25c
Birmingham base	3.15c to 3.20c
St. Louis, del.	3.45½c

BLUE ANNEALED SHEETS NO. 13

Pittsburgh, base	2.15c
Chicago, district mills	2.25c
Chicago, delivered	2.30c
St. Louis, delivered	2.50½c
Philadelphia, delivered	2.44c
Birmingham	2.30c

BLUE ANNEALED PLATES, NO. 9-10

Pittsburgh, base	1.90c to 2.00c
Chicago, district mills	2.10c
Chicago, delivered	2.15c
Philadelphia, delivered	2.19c to 2.29c
St. Louis, delivered	2.35½c
Birmingham	2.15c

AUTOMOBILE NO. 20

Pittsburgh base	3.40c to 3.50c

FURNITURE NO. 24

Pittsburgh	3.60c to 3.70c

Tin and Terne Plate

Prices per 100-pound box Pittsburgh

Tin plate, coke base	5.00
Gary, Ind., base 10 cents higher.	
Long ternes, 24, primes	3.65c
Long ternes, 24, assorted	3.55c
Long ternes, 24, unassorted	3.45c

Wire Products

(To Jobbers-Merchant Trade)

F.o.b. Pittsburgh, Cleveland base
(Per 100 pound keg)

Standard wire nails	$2.00 and 2.15
Cement coated nails	2.00 and 2.10
Galvanized nails	4.00 and 4.10

(Per pound)

Polished staples	2.45c and 2.55c
Galvanized staples	2.70c and 2.80c
Barbed wire, gal.	2.65c and 2.75c
Annealed fence wire	2.15c and 2.25c
Galvanized wire	2.60c and 2.70c

Woven wire fencing, retailers, Pittsburgh-Cleveland, net ton $65.

(To Manufacturing Trade)

Plain wire, 6-9 gage	2.30c
Spring wire	3.30c
Wire, delivered Detroit	2.53½c
Nails, delivered Detroit	$2.38½

Joliet, DeKalb, Waukegan, Ill., Anderson, Ind., Chicago, $1 over Pitts.-Cleve.; Duluth and Worcester, Mass., $2 higher; Fairfield, Ala., $3 higher.

Rivets

Struc. c.l., Pitts.-Cleve.	2.75c
Struc., c.l., Chicago	2.85c
**7/16-inch and smaller, Pitts.	70, 10 and 5 off
Chi., Cleve.	70 to 70, 10 and 5 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

Steel Plates

Base, Pittsburgh	1.60c
Philadelphia, del.	1.80½c
New York, del.	1.88c
Boston, del.	2.00c
Chicago, base	1.70c to 1.75c
Cleveland, delivered	1.78½c to 1.88½c
Lackawanna, N. Y., base	1.70c
Birmingham, base	1.80c to 1.35c
Coatesville, Pa., base	1.70c
Pacific Coast, c.i.f.	2.05c to 2.15c
St. Louis, del.	2.00½c

Structural Shapes

Base, Pittsburgh	1.60c
Philadelphia, del.	1.76c
New York, del.	1.75½c to 1.85½c
Boston, del.	1.88½c to 1.98½c
Chicago, base	1.70c to 1.75c
Cleveland, delivered	1.83½c to 1.88½c
Lackawanna, N. Y., base	1.70c
Birmingham, base	1.80c to 1.85c
Pacific Coast, c.i.f.	2.15c to 2.25c

Bars

SOFT STEEL

Pittsburgh, base	1.60c to 1.65c
Chicago, base	1.70c to 1.75c
Birmingham, base	1.80c to 1.85c
Lackawanna, N. Y., base	1.70c to 1.75c
Pacific Coast, c.i.f.	2.25c to 2.35c
Cleve. base, local del.	1.65c
Do, outside delivery	1.60c
Philadelphia, del.	1.89c to 1.94c
New York, delivered	1.93c to 1.98c
Boston, delivered	2.00c to 2.05c
Pittsburgh, cold finish	1.75c to 1.80c
Pittsburgh, forg. qual.	1.85c to 1.90c

RAIL STEEL

Chicago Heights	1.65c
Eastern mills	1.65c

IRON

Chicago, base	1.75c
New York, delivered	1.93c to 1.98c
Philadelphia, delivered	1.89c to 1.94c
Pittsburgh, refined	2.75c to 4.25c

REINFORCING

Pitts., billet cut lengths	1.90c to 2.00c
Stock lengths, mill	1.65c to 1.75c
Chi. billet, over 500 tons	1.70c to 1.85c
30 to 200 tons	2.00c
Under 30 tons	2.45c to 2.85c
Chi., rail steel, over 30 tons	1.50c to 1.60c
Under 30 tons	2.10c to 2.50c
Philadelphia, cut lengths	2.04c to 2.09c

Cold-Finished Steel

Bars, Pitts., Chi., Buff.	2.00c
Cleveland	2.00c to 2.10c
Do, delivered, Detroit	2.20c
Shafting (turned, polished)	
Pitts., Buffalo	2.10c
Do, (turn., ground) mill	2.45c to 2.90c

Corrosion, Heat Resist. Alloys

Base, Pittsburgh
18 per cent chrome, 8 per cent nickel
Sheets, 35c; plates 31c; bars 28c

	A	B	C	D
Bars	19c	20.5c	23c	28c
Plates	22c	23.5c	26c	31c
Sheets	26c	27.5c	30c	35c
Hot strip	19c	20.5c	23c	28c
Cold strip	28c	29.5c	32c	37c

Carbon 0.12 and under; no nickel. A has chrome 15% and under, B over 15/18% inc., C over 18/23% inc., D over 23/30%.

Wrought Washers

Carloads, Pitts. dist.	$6.50 to $6.75 off
Carloads, Chicago dist.	6.70 to 6.80 off

Alloy Steel

Hot Rolled—F.o.b. Mills
Alloy Quality Bar Base is 2.65c

S.A.E	Alloy Diff.	S.A.E	Alloy Diff.
2000	0.25	1.25-1.75 Ni.	1.05
2100	0.55	5100 .80-1.10	
2300	1.50	Cr.	0.45
2500	2.25	5100 Chr.	
3100	0.55	spring	0.20
3200	1.35	6100 bars	1.20
3300	3.80	6100 Spring	0.95
3400	3.20	Chr., Ni., Van.	1.50
4100 .15 to .25 Mo.	0.50	Carbon Van.	0.95
4600 .20-.30 Mo.		9250 (flats)	0.25
		9250 (rds., sq.)	0.50

Strip, Hoops, Bands

Hot strip, to 6-in., Pitts.	1.70c to 1.75c
Hot strip 6 1/16 to 24-in., Pitts.	1.60c to 1.65c
Hot strip, bands 6 in. and under, Chicago	1.85c
Do, 6 1/16 to 24 in.	1.75c
Cooperage hoop, Pitts.	1.90c to 2.00c
Do, Chicago	2.00c to 2.10c
Cold rolled strip., Pitts., Cleve., 3 tons, over	2.35c to 2.45c
Worcester, 3 tons, over	2.50c to 2.60c

Rails, Track Material

Standard bess. and open hearth rails, mill	$43.00
Relay rails, Pitts., 60 to 90 lb.	$24.00 to 28.00
Light rails, 25-45, mills	$34.00
Angle bars, Chi. base	2.75c
Spikes, railroad, mills	2.80c
Spikes, railroad, 7/16-in. and smaller, Pitts.	2.80c
Spikes boat, barge, Pitts.	3.00c
Spikes, railroad, Chi.	2.80c
Track bolts, Pitts., steam roads	3.80c
Do. standard, jobbers	75 off list
Track bolts, Chicago	3.80c
Tie plate, mills	$39.00 to 41.50

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham and Chicago

Discounts to legitimate jobbing or large consuming trade for full-case lots apply to May 10, 1930, lists.

CARRIAGE BOLTS

All sizes, cut thread 73 off
Rolled thread ⅝ x 6 and smaller take 10 per cent lower list.
Eagle list 73 off

MACHINE BOLTS

All sizes cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts 73 off
Tire bolts, 60, 10 and 10 off.
Stove bolts, 80, 10, 10, 5 off in pkgs.; 80, 10, 5, 2½ off in bulk.
Rolled thread machine bolts, ⅝ x 6 and smaller take 10 per cent lower list.

NUTS

Semifinished 73 off

***HEXAGON CAP SCREWS**

Milled 80-10-5 off
Upset 1 in. diam. and smaller 80-10 off

***SQUARE HEAD SET SCREWS**

Milled 85-5 off
Upset 1 in. and smaller 80-10-5 off
*Discounts dated Jan. 23, 1930

Cut Nails, Chain, Piling

Cut nails, c.l., mills	2.45c
Do, less carloads	2.55c
Chain, BB, BBB, 9/16-1½ in.	33 1/3 off
Sheet piling, Pitts.	2.00c

Bars

Some Gain in Demand Gives Better Production—More Activity in Alloy Grades

BAR PRICES, PAGE 75

Chicago—Bar mills are maintaining the lead in specifications established three weeks ago. Specifications for bars and other finished products have gained and now are a shade ahead of September. Several implement works will go into heavier production Nov. 1, but operations remain spotty, only two in this territory being at a high rate. Soft steel bars are quoted at a base of 1.70c, Chicago. Alloy steel bar output is about 40 per cent. Additional autumn releases in the last ten days have helped schedules, but mills are without backlogs.

New York—While most current business in steel bars continues to move at 1.65c, Pittsburgh, 1.60c is more common, with a result that 1.60c to 1.65c, Pittsburgh, may be quoted. Trading is fair, showing little improvement.

Philadelphia — Buying of steel bars recently has been the best in two months but the increase represents accumulation rather than enlarged consumption. The price continues 1.60c to 1.65c, Pittsburgh.

Pittsburgh — Steel bar business continues dull with recent tonnage off moderately from the early October rate. Prices are unchanged but show no stronger tone at 1.60c to 1.65c, Pittsburgh. Inquiry for large lots is entirely absent with orders still restricted to immediate requirements.

Youngstown, O.—Small lots of common steel bars continue to be the rule, for immediate shipment. Alloy and special steels appear in fair demand. Common steel bars bring 1.65c, Pittsburgh, but some reports still persist of 1.60c being done.

Cleveland—Orders from automotive and allied industries for merchant steel bars are small. They also are fewer than in September. Each buyer specifies only what is needed and as a consequence prompt deliveries are wanted in each case. The 1.60c, Cleveland, price continues for outside shipment with 1.65c, Cleveland, applying for local delivery.

Issues Tariff Summary

A 60-page booklet showing all of the "rates of duty on iron and steel and other metal products including materials and substances used in the steel industry according to the tariff act of 1930" has been compiled by Thomas J. Doherty, tariff counsel of the American Iron and Steel institute, 75 West street, New York.

Sponsor Welding Meeting

Co-operating with the Association of Iron and Steel Electrical Engineers, the department of engineering extension, Pennsylvania State college, State College, Pa., will sponsor its annual Industrial Electric Heating and Welding conference at William Penn hotel, Pittsburgh, Nov. 13-14. A feature of the second day's program will be a symposium on "Welding Wire."

Cold-Finished Business Held to Small Lots

Cold Finished Prices, Page 75

Cleveland—Makers of cold-finished bars have been hard hit by the automotive situation. Machine screw products manufacturers specify meagerly and other users also take only small lots. The price continues 2.00c to 2.10c, Cleveland.

Plates

More Southwestern Tank Work Appears in Market—Eastern Trade Marks Time

PLATE PRICES, PAGE 75

New York—Plates continue 1.70c, Coatesville, Pa., for carload lots, and 1.75c for less than carload lots. Demand is moderate. Award of a government airplane carrier to the Newport News Shipbuilding & Dry Dock Co. will lead to some substantial buying of plates. The carrier will require 9750 tons of steel, of which approximately two-thirds will be plates. The decision of the Baltimore & Ohio to build 2000 steel freight cars at its Baltimore shops also will aid the plate market. The New York department of plants and structures is expected in the market within the next fortnight for a ferry boat, requiring about 500 tons of plates. Later this department will buy two smaller ferry boats requiring about 250 tons of plates each.

Bids were opened Oct. 20 by the New York city department of correction for a penitentiary building on Riker's island, requiring 4000 tons of plates, and 6000 tons of shapes.

Boston — Worcester, Mass., has awarded to a Pennsylvania mill a contract for 1500 tons of plates for a 36-inch water pipe. The federal government is expected to place a contract for 1500 tons of piling within a few days for a lighthouse to be erected at South Portland, Me.

Philadelphia — Plate bookings show further decline, with eastern mills operating at about 50 per cent. The price continues 1.70c, base, Coatesville, Pa., subject to occasional concessions on certain classes of business. Considerable plate tonnage is expected to be needed for a large gas holder at West Conshohocken, Pa. for the Philadelphia Electric Co.

Pittsburgh—Plate tonnage is fairly steady but seasonally light. Tank work is fair but requirements of freight car and barge builders are poor. The market usually is 1.60c, Pittsburgh.

Cleveland—Plate orders are few and for small lots. Diversified consuming lines, however, are represented. The price continues 1.60c, base, Pittsburgh.

Chicago—Two refinery projects in western Texas have brought out inquiry for 3000 tons of plates. Action of the Oklahoma supreme court in upholding the constitutionality of the state oil conservation law is likely to result in postponed closing of 10,000 to 15,000 tons of tank plate inquiry in Oklahoma, pending appeal of the case. From 20,000 to 25,000 tons of plates are on inquiry for tank work in the southwestern oil country. Great Lakes Pipe Line Co., owned by Barnsdall Corp., has applied to Illinois commerce commission, Springfield, Ill., for authority to build a 6-inch pipe line from the Mississippi river to Chicago, and to construct a bulk storage terminal at Melrose Park, Ill. Some weakness is noted in the 1.70c, Chicago base, price for plates.

Contracts Placed

1500 tons, for 36-inch pipeline for Worcester, Mass., municipal water

service, to a Pennsylvania mill.
1500 tons for Worcester, Mass., to unnamed Pennsylvania mill.
250 tons, tank work, West Haven Oil Co., West Haven, Conn., to unstated fabricator.
100 tons or more, 100,000-gallon tank, 125 feet high, for Sturtevant, Racine county, Wis., to Pittsburgh-Des Moines Steel Co., Des Moines, Iowa, on its bid of $9425.

Contracts Pending

6500 tons, government airplane carrier, to Newport News Shipbuilding & Dry Dock Co., Newport News, Va.; approximately 3250 tons of shapes and bars also will be required.
4000 tons, penitentiary building for New York City; bids opened.
1500 tons, sheet piling, United States government lighthouse base, South Portland, Me.
600 tons, 11,500 lineal feet of 30-inch water pipe for Tacoma, Wash.; bids Oct. 20.
500 tons, municipal ferry boat, New York, bids in about two weeks; approximately 300 to 400 tons shapes ands bars also required.
500 tons, two small ferry boats, New York; bids later.

Iron Ore Shipments To End in November

Iron Ore Prices, Page 86

Cleveland—The majority of Lake Superior iron ore producers are preparing for an early close of lake shipments. November will see a considerable reduction from the October tonnage, and practically complete the season's shipments. Ore consumption in September, amounting to 3,281,573 tons, was the lowest of any month since September, 1924, with 2,927,102 tons. While consumption will be at a low ebb during the remainder of the year and early in 1931 stocks at furnaces and lower lake ports are 240,744 tons larger than a year ago. The Lake Superior Iron Ore association reports:

	Tons
Ore consumed in August	3,673,161
Ore consumed in September	3,281,573
Decrease in September	391,588
Ore consumed in September, 1929	5,361,567
Ore on hand at furnaces Oct. 1, 1930	32,322,567
Ore on Lake Erie docks Oct. 1, 1930	6,043,489
Total at furnaces and Lake Erie docks Oct. 1, 1930	38,366,056
Total Oct. 1, 1929	38,125,312

Simplify Steel Joists

Washington—Enough acceptances have been received to the simplified practice recommendation on open-web steel joists, distributed Aug. 2, to make the recommendation effective as of Oct. 1, according to the division of simplified practice, department of commerce, Washington.

Railroads

Baltimore & Ohio to Build 2000 Cars in Own Shops—Union Pacific Divides 45,000 Ton Rails

TRACK MATERIAL PRICES, PAGE 75

New York—Outstanding in an otherwise listless car market in the East is the award of 2000 steel freight cars by Baltimore & Ohio. This, the largest order in considerable time, will place October's total above any monthly aggregate since March.

Erie is expected in the market shortly for 40,000 tons of rails, while announcement of rail orders by two southern railroads is expected shortly, a relatively small aggregate. New York Central's inquiry for 175,000 tons, previously noted, is expected almost momentarily.

It is believed that issuance of New York Central rail specifications will follow an executive meeting of that railroad, scheduled for Wednesday, Oct. 22.

Boston—Boston & Maine has awarded 10,000 tons of rails to Bethlehem Steel Co., for seasonal work planned.

Philadelphia—Railroads now are buying track accessories regularly, as well as plates, shapes and bars for repairs. Aggregate tonnage, however, is much below normal.

Pittsburgh — Specifications for track material continue light with the market quiet in new inquiry. Chesapeake & Ohio has not closed on its tie plates. Prices are unchanged on track material with a test lacking on large lots.

Cleveland—Chesapeake & Ohio railroad has awarded the screw spikes on its recent inquiry for track accessories.

Chicago—Union Pacific divided 45,000 tons of rails among three mills. Other roads placing rail tonnage with western mills recently include Santa Fe, Pere Marquette, Great Northern, Northern Pacific and Kansas City Southern. Chicago & North Western is expected to ask for 30,000 tons, and Illinois Central, 30,000 to 35,000 tons. Rail mills operate 30 per cent. Track fastenings sales totaled 5000 tons. Tie plates are reported weak, with sales as low as $39.

Santa Fe is unofficially reported to contemplate a large car purchase. Illinois Central will issue new specifications for 2300 freight and passenger cars after Jan. 1, 1931.

Birmingham—It is expected that the rail mill here will resume operations about Nov. 15. A few rail specifications have been received and more are anticipated. Car builders are still idle.

Car Orders Placed

Anglo-Chilean Consolidated Nitrate Corp., 50 air dump cars, to Magor Car Corp., Passaic, N. J.
Baltimore & Ohio, 1000 box and 1000 gondolas, one-half to company's shops at Baltimore and rest to its shops elsewhere.
Brooklyn-Manhattan Transit Co., Brooklyn, N. Y., 100 street cars, 50 to J. G. Brill Co., Philadelphia, and 50 to Osgood-Bradley Car Co., Worcester, Mass.
Chicago Great Western, 500 box cars, to Pullman Car & Mfg. Corp., Chicago. STEEL of Oct. 16 stated this order was understood placed with this builder.

Locomotive Orders Placed

Coos Bay Lumber Co., one 2-8-2 type locomotive, to American Locomotive Co., Dunkirk, N. Y.

Rail Orders Placed

Boston & Maine, 10,000 tons, to Bethlehem Steel Co., Bethlehem, Pa.
Kansas City Southern, 8000 tons, 127-pound rails, to Illinois Steel Co., Chicago, and Bethlehem Steel Co., Bethlehem, Pa.
Union Pacific, 45,000 tons rails, 19,800 going to Illinois Steel Co., Chicago, 19,800 to Colorado Fuel & Iron Co., Pueblo, Colo., and 5400 to Inland Steel Co., Chicago.

Car Orders Pending

Indiana Service Corp., Ft. Wayne, Ind., 25 interurban cars.

Locomotives Pending

Duluth, Missabe & Northern, three locomotive tenders.

Rail Orders Pending

Erie, 40,000 tons rails, specifications expected out early in November.
New York subway system, Board of Transportation, New York, 11,000 tons, 100-pound rails; bids Oct. 24, also on year's supply bolts, nuts, washers, spikes, tie plates, joint bars, malleable and cast iron castings and switches.

Bars Galvanized Iron

The Australian minister for trade and customs has issued a proclamation which became effective Oct. 4, prohibiting importation of all galvanized iron, according to a radiogram received in the department of commerce. The minister's consent has been given for importation of such goods if they were actually in transit on Oct. 4.

Structural Shapes

Bridges, Apartments, Office Buildings Well Represented —This Week's Aggregate Lettings Approach Last Week's Highest Total in 13 Weeks—Inquiries Active

STRUCTURAL SHAPE PRICES, PAGE 75

Chicago—Estimates are that 20,000 tons of structural steel will be used in the Chicago post office on a site purchased last week. Caisson work will not start before three months. Some of the weakness in the 1.70c, Chicago base, price for plain material is disappearing. Recent structural awards totaled 3000 tons, and inquiries, including the Randolph street viaduct and suburban station, Chicago, 3500 tons. Bridge work comprises the inquiry.

Boston—Less than 1000 tons of structural shapes was awarded in this section the past week.

New York—Five apartment houses placed in New York call for 5000 tons or more of shapes. New work is lower. Prices on plain material are firmer at 1.70c, base, eastern mill, although some work is figured at old prices, since some fabricators covered well into October. Another subway section will be advertised involving 9700 tons, making 27,200 tons pending, some due for placing.

Philadelphia—Shape demand is fair and eastern mills continue to operate 60 to 65 per cent. The price on general business continues 1.70c, nearest eastern mill, equivalent to 1.76c, delivered Philadelphia, for plain standard shapes, but in some cases lower prices of the third quarter have not yet been withdrawn.

Buffalo—New York Central railroad is taking bids about Nov. 10 for a viaduct over tracks at Lackawanna, N. Y., 2158 tons.

Pittsburgh — Specification for plain structural material are fairly well maintained, tonnage approximating that of early October. Inquiry is fair. Awards include 4500 tons for railroad and highway bridges. Plain shapes usually are 1.60c, Pittsburgh.

Cleveland—Local shape awards still are at low ebb. The bar mill at Ecorse, Mich., for Great Lakes Steel Corp., went to McClintic-Marshall Co., 2000 tons. That fabricator also took the 792-ton bridge for Chesapeake & Ohio railroad, Cincinnati. Prices still are low on material fabricated and erected, the latest figure uncovered locally on a 775-ton job being $61 a ton, $46.50 for fabrication and $14.50 for erection.

General contracts on the civic stadium, 4200 tons, and the Higbee Co. department store, 3000 tons, were let late last week to W. J. Schirmer Co., and Lundoff-Bicknell Co., Cleveland, respectively. Steel for the former was let to American Bridge Co. as noted in STEEL of July 10, and for the latter to the same fabricator as noted in IRON TRADE REVIEW of May 29.

Cincinnati — Bids were opened here this week on the Western Hills viaduct requiring 5000 tons of structural steel and 4000 tons of concrete bars. Awards were deferred. Bids will be opened Oct. 28 and 30 at Indianapolis for a joint Indiana and Kentucky highway bridge at Evansville, Ind., requiring 7800 tons of structural shapes.

Birmingham, Ala. — Structural steel fabricating shops maintain a 5-day week. Small jobs predominate.

Contracts Placed

3400 tons, Mill building, San Francisco, to McClintic-Marshall Co., San Francisco.

2800 tons, bridges, Pittsburgh & West Virginia railroad to American Bridge Co., Pittsburgh.

2635 tons, state bridge, Maysville, Ky., to McClintic-Marshall Co., Pittsburgh; John A. Roebling's Sons Co., Trenton, N. J., to furnish wire cables as noted in STEEL of Sept. 25, 2385 tons.

2500 tons, electrical building, Chicago World's Fair, Chicago, to unstated fabricator.

2200 tons, 32-story building, Fidelity National Bank & Trust Co., Kansas City, Mo., 4700 tons instead of 2500 tons as reported Sept. 25, to Kansas City Structural Steel Co., Kansas City, Kans.

2200 tons, 18-story apartment, Central Park West and Eighty-fourth street, New York, to Hinkle Iron Co., New York; Earl & Calhoun, builders; Schwartz & Gross, architects.

Awards Compared

	Tons
Awards this week	**47,371**
Awards last week	**56,759**
Awards two weeks ago	**26,483**
Awards this week in 1929	**67,751**
Av. weekly awards, 1930	**36,092**
Av. weekly awards, 1929	**42,213**
Av. weekly awards, Sept.	**39,163**
Tot. awards to date, 1929	**1,803,061**
Tot. awards to date, 1930	**1,551,958**

2170 tons, Potomac river bridge, Baltimore & Ohio railroad, Harper's Ferry, W. Va., to American Bridge Co., Pittsburgh.

2000 tons, merchant bar mill, Ecorse, Mich., Great Lakes Steel Corp., Detroit, to McClintic-Marshall Co., Pittsburgh.

2000 tons, repairs to Narrows bridge, Vancouver, B. C., to Dominion Bridge Co. Ltd., Montreal.

1900 tons, superstructure of section of main viaduct, terminal development between St. Antoine and Ottawa streets, Canadian National railways, Montreal, Que., to Dominion Bridge Co. Ltd., Montreal.

1700 tons, highway bridgework in Missouri, 1000 tons in Camden county and 700 tons in St. Louis county, to Wisconsin Bridge & Iron Co., Milwaukee.

1700 tons, two bridges, Page county, Virginia, Norfolk & Western railroad, to Virginia Bridge & Iron Co., Roanoke, Va.

1200 tons, 16-story apartment, 41-49 Christopher street, New York, to Harris Structural Steel Co., New York; Boak & Paris, architects.

1100 tons, apartment, Thirteenth street and Seventh avenue, New York, to Dreier Iron Works, New York.

950 tons, building, Brooklyn Edison Co., Brooklyn, N. Y., to Shoemaker Bridge Co., Pottstown, Pa.

900 tons, bridges, Monessen-Southwestern railroad to McClintic-Marshall Co., Pittsburgh.

792 tons, Smith street bridge, Chesapeake & Ohio railroad, Cincinnati, to McClintic-Marshall Co., Pittsburgh.

770 tons, two cantliver high level bridges, Hackensack and Passaic rivers, New Jersey, to make tonnage 16,670 tons instead of 15,900 tons as noted exclusively in STEEL of Oct. 16, to McClintic-Marshall Co., Pittsburgh.

750 tons, 15-story apartment, Greenwich avenue and Christopher street, New York, to Lehigh Structural Steel Co., Allentown, Pa.; H. R. H. Construction Co., general contractor; Van Wart & Wein, architects.

711 tons, three truss spans, Lycoming county, Pa., to McClintic-Marshall Co., Pittsburgh.

700 tons, plant, Simonds Saw & Steel Co., Fitchburg, Mass., to the Austin Co., Cleveland.

665 tons, 18-story apartment, First avenue and Seventy-second street, New York, to Lehigh Structural Steel Co., Allentown, Pa.; H. R. H. Construction Co., general contractor; Van Wart & Wein, architects.

650 tons, high school, Washington, Pa., to Kevstone Engineering Co., Pittsburgh, through Baker & Coombs, Morgantown, W. Va., general contractors; E. B. Lee, Pittsburgh, architect.

635 tons, 12-story New England building addition, Kansas City, Mo., to Kansas City Structural Steel Co., Kansas City, Kans.

600 tons, bridge work at Tulsa, Okla., to Rochester Bridge Co., Rochester, Ind.

582 tons, Des Moines river bridge, Tracy, Ill., to Pittsburgh-Des Moines Steel Co., Des Moines, Iowa.

550 tons, bridge, Pittsburgh & West Virginia railway, Jacob's Creek, Pa., to American Bridge Co., Pittsburgh.

500 tons, technical school, Moose Jaw, Sask., to Dominion Bridge Co. Ltd., Winnipeg, Man.

450 tons, prison farm dormitory, London, O., to Reliance Steel Construction Co., Warren, O.

425 tons, apartment, 227 East Fifty-seventh street, New York, to Hinkle

Iron Works, New York; W. M. & H. S. Baumgarten, builders; Boak & Paris, architects.

425 tons, court house and United States customs building, Toledo, O., to unstated fabricator through a Chicago general contractor.

400 tons, school, Mamaroneck, N. Y., to Just Structural Engineering Co., White Plains, N. Y.; Acampora Bros., general contractors.

400 tons, federal building at El Dorado, Ark., to Arkansas Foundry Co., Little Rock, Ark.

390 tons, senior high school, San Antonio, Tex., to Alamo Iron Works, San Antonio; Walsh, Burney & Key Inc., San Antonio, general contractor.

390 tons, substructure, municipal power plant, Detroit, to R. C. Mahon Co., Detroit.

370 tons, 12-story Y. M. C. A., Dallas, Tex., to Mosher Steel & Machinery Co., Dallas,; N. Wohfield, Dallas, general contractor.

325 tons, newspaper building on North Wilcox street, Los Angeles, to McClintic-Marshall Co., Los Angeles.

310 tons, Beaver creek bridge, Galesville, Wis., to Wausau Iron Works, Wausau, Wis.

307 tons, unit, Merrimac Chemical Co., Everett, Mass., to Palmer Steel Co., Springfield, Mass.

300 tons, plant addition, Eugene F. Phillips Electrical Works, Brockville, Ont., to Hamilton Bridge Co. Ltd., Hamilton, Ont.

300 tons, plant, Guaranteed Milk Co., Montreal, Que., to Dominion Bridge Co., Montreal.

300 tons, buildings, Howard university, Washington, to Dietrich Bros., Baltimore.

285 tons, bridge, Franklin, N. H., to American Bridge Co., Pittsburgh; Albany Bridge Co., Albany, N. Y., general contractor.

278 tons, grade crossing elimination, New York Central railroad, Holley Station, N. Y., to McClintic-Marshall Co., Pittsburgh.

275 tons, teachers' training building, Ohio State university, Columbus, O., to Pittsburgh-Des Moines Steel Co., Pittsburgh.

265 tons, additional construction, Safe Harbor, Pa., to Belmont Iron Works, Philadelphia, through Arundel Corp., general contractor.

259 tons, state highway bridge, Montgomery county, N. Y., to American Bridge Co., Elmira, N. Y.; Albany Bridge Co., Albany, N. Y., general contractor; 23 tons reinforcing bars to Truscon Steel Co., Younkstown, O.

250 tons, pier noses, Safe Harbor, Pa., to McClintic-Marshall Co., Pittsburgh.

205 tons, bridge on Ashfork-Kingman highway, Phoenix, Ariz., to Virginia Bridge & Iron Co., Roanoke, Va.

200 tons, bridge approach, route 4, section 7, New Jersey, to Belmont Iron Works, Philadelphia, Maggi & Schoonover, Paterson, N. J., general contractors.

200 tons, building, Pittsburgh, McCrory Stores Corp. to John Eichleay Jr., Co., Pittsburgh.

200 tons, hospital, Mt. Vernon, N. Y., to Kues Bros. Iron Works, Bronx, N. Y.; Cuzzi Bros. general contractors.

200 tons, office building, Holland Furnace Co., Holland, Mich., to Flint Structural Steel Co., Flint, Mich.; F. E. Davidson, Chicago, architect.

200 tons, grade crossing elimination in Ohio, New York Central railroad, to American Bridge Co., Pittsburgh.

200 tons, John Marshall school, Los Angeles, to Minneapolis Steel & Machinery Co., Minneapolis.

200 tons, Fox theater, Spokane, to Wallace Bridge & Structural Steel Co., Seattle.

200 tons, Rising Sun avenue bridge, Philadelphia, to Bethlehem Steel Co., Bethlehem, Pa.

170 tons, plant addition, G. H. Williams & Co., Buffalo, to Kellogg Structural Steel Co., Buffalo.

100 tons, boiler house addition, Grigsby-Grunow Co., Chicago, to McClintic-Marshall Co., Pittsburgh.

150 tons, factory building, C. A. Dana, Toledo, O., to Flint Structural Steel Co., Flint, Mich., 500 tons instead of 350 tons as reported Sept. 11; A. Bentley & Sons Co., Toledo, general contractor.

150 tons, additional, warehouse, Macy Co., Brooklyn, N. Y., to A. E. Norton Inc., New York, reported last week as 100 tons, should have been 250 tons.

150 tons, airplane hangars, Plant City, Fla., to Virginia Bridge & Iron Co., Roanoke, Va.

150 tons, warehouse, New York, New Haven & Hartford railroad, Bronx, N. Y. to the Austin Co., Cleveland.

150 tons, Good Samaritan hospital, Lexington, Ky., to Snead Architectural Iron Works, Louisville, Ky.

120 tons, buildings, state schools, Negro Blind and Deaf institute, Raleigh, N. C., to Carolina Steel & Iron Co., Greensboro, N. C.

118 tons, chapel, Andover, Mass., to New England Structural Co., Boston.

115 tons, medical laboratory, Littauer hospital, Gloversville, N. Y., to Leach Steel Co., Rochester, N. Y.; C. P. Boland & Co., general contractors.

110 tons, addition, Institute for Crippled and Disabled, First avenue and East Twenty-third street, New York, to Dreier Iron Works, New York; Cauldwell-Wingate Co., contractor.

104 tons, laundry building, Salem, Mass., to Palmer Steel Co., Springfield, Mass.

100 tons, Nelson art gallery, Kansas City, Mo., 1100 tons instead of 1000 tons as reported Oct. 16, to Kansas City Structural Steel Co., Kansas City, Kans.

100 tons, building, Richard Hudnut Co., Fifth avenue, New York, to Passaic Iron Works, Passaic, N. J.; H. M. Hughes Co., general contractor.

100 tons, apartment, Steiner and Haight streets, San Francisco, to McClintic-Marshall Co., San Francisco.

100 tons, bridge at Niverville, N. Y., Boston & Albany railroad, to Boston Bridge Works Inc., Boston.

Contracts Pending

9700 tons, subway, route 108, section 9, Queens, N. Y., to 137th street at Hillsdale avenue; bids open Nov. 5 closing Nov. 20.

7880 tons, Kentucky state bridge over Ohio river at Evansville, Ind.; bids in.

5000 tons, Western Hills viaduct, Cin-

(*Concluded on Page* 83)

Concrete Bars

Total Awards Again Exceed 8000 Tons—Aided by 4000-Ton Bridge Let in Canada—4000-Ton Bridge in Cincinnati Deferred—Inquiry Rate Slows Up in Some Sections

REINFORCING BAR PRICES, PAGE 75

New York—Concrete reinforcing bar prices holding at 1.70c, base, Pittsburgh, with little shading. Buying is fairly active, tonnage up for figures being seasonally large. Volume continues heavier than last year.

Boston—In addition to 135 tons of concrete bars for a Waltham, Mass., hospital, awarded to Truscon Steel Co., about 150 tons in odd lots was placed.

Philadelphia—The market on concrete bars, cut lengths in carloads is 1.75c to 1.80c, Pittsburgh.

Buffalo—An inquiry for 260 tons of reinforcing bars and mesh for a viaduct is the largest new inquiry.

Pittsburgh—Concrete bar business continues fair for this period. With the exception of 500 tons for a local building and garage, nearby awards are light. Inquiry is quiet.

Cleveland—About 1000 tons of concrete bars is pending in three jobs here, the civic stadium, 500 tons; Higbee Co. department store, 310 tons; and John Marshall high school, 200 tons. The latter will come up shortly after Nov. 1. General contracts on the first two were let last week to W. J. Schirmer Co. and Lundoff-Bicknell Co., respectively, and the bars will probably be bought late this week.

Chicago—Fresh inquiry in reinforcing bars is slow, but pending work amounts to about 1000 tons. Illinois road work again has been let. Inquiry now shaping up is for a Chi-

(*Concluded on Page* 83)

Awards Compared

	Tons
Awards this week	8,140
Awards last week	8,027
Awards two weeks ago	4,193
Awards this week in 1929	9,850
Av. weekly awards, 1929	5,849
Av. weekly awards, 1930	7,010
Average weekly awards Sept.	7,104
Total awards to date, 1929	267,112
Totals awards to date, 1930	301,446

Strip

Little Change in Demand—Radio Needs Help Eastern Makers—Prices at Steady Level

STRIP PRICES, PAGE 75

Pittsburgh — Strip specifications are barely holding their own at the early October rate. Automotive orders are restricted to small lots and tonnage is smaller than a month ago. A few consumers have increased their requirements during the past 30 days but this business is insufficient to provide operations better than 40 to 50 per cent. Cold strip output remains around 35. Prices continue 1.70c to 1.75c and 1.60c to 1.65c for the two sizes of hot strip and 2.35c to 2.45c for cold rolled strip.

Worcester, Mass.—Production of cold-rolled strip this month is running ahead of any month since early in the year, under the impetus of a couple of carloads from the Pacific coast. Prices quoted are 2.50c to 2.60c, Worcester.

Philadelphia—Strip steel continues easy at 1.60c and 1.70c, Pittsburgh, for narrow and 1.80c to 1.90c on wide hot-rolled. Eastern mills are producing at 60 to 100 per cent. Concentration of radio production at Philadelphia brings as much tonnage as last year though requirements of some plants are less than this good mark.

Youngstown, O.—The slight improvement in demand for narrow strip, both hot and cold-rolled, still holds. This leads to hope of something better soon. Miscellaneous needs of consumers supply most present demand, the auto partsmakers not meeting expectations. Quotations for the most part are unchanged.

Cleveland—Strip steel manufacturers depending upon automotive and allied lines for orders received severe setbacks. Releases are few and tonnage is declining. One or two manufacturers of cold strip catering to a diversified line of use have good tonnage in the aggregate but individual orders are small. Narrow hot strip orders are fair but total tonnage is unimportant. Cold still is 2.35c, Cleveland, while narrow and wide hot strip are 1.70c and 1.60c, respectively.

Warehouse Sales Hold; Philadelphia Prices Cut

Warehouse Prices, Page 97

Boston—Lack of business in round tonnages has centered interest on warehouses, from which a fair amount of materials are moving for numerous small jobs. Listed prices hold well.

New York—Jobbing demand is quiet with prices unchanged.

Philadelphia—General reduction of $2 a ton has been made by jobbers here on plates, bars, bands, hoops and sheets. The change became effective Oct. 18. Reduction was made in line with lower mill prices now prevailing.

Buffalo—Warehouse business continues at the same level of the early part of October. The market continues to give evidence of cautious buying.

Cincinnati—Business of jobbers reflects little change, either in character or tonnage, from September. Demand for building materials is unimproved. Prices are unchanged.

Chicago—October warehouse sales are gaining only slightly over September. Fair sheet jobbing is reported. Individual orders still are small, but numerically heavy. Further irregularity is shown in wire nail prices.

Cleveland—Expectations of warehouse interests in this district for an increase in buying have failed so far. Demand continues relatively light; a moderate volume of small orders going to a wide variety of consumers. Jobbers encounter little difficulty in obtaining quoted prices.

St. Louis—Aside from a limited number of commodities affected by seasonal influences, iron and steel warehouses remain quiet. Even on items active at this time of year, demand is much below usual seasonal proportions. Sales of wire fencing and accessories are disappointing. Automobile and railroad shop demand continues quiet. Purchasing by the carriers generally is strictly on an absolute necessity basis.

Operations Shade Better Except at Cleveland

Youngstown, O.—Operations are unchanged from last week at 53 per cent of capacity, with improvement in automobile steel bookings failing to materialize on the scale expected.

Nearly all local units maintain last week's schedule. Open hearth production is unchanged with 28 of 53 active for independents, while sheet production continues at approximately 45 per cent. Youngstown Sheet & Tube Co. plant operations continue unchanged at 50 per cent, Republic Steel Corp. at 65, Carnegie Steel Co. at 50, Sharon Steel Hoop Co. at 50, Mahoning Valley Steel Co. at 80, and Empire Steel Corp. sheet plants in this district, as well as in Mansfield, idle.

Buffalo—Operations of district steel works continue at 57 per cent of open-hearth capacity but there may be minor reduction in this rate before the end of the month. One district steelworks now has two blooming mills on double turn but other units are all on single and several are on part-time schedules.

Philadelphia—Eastern mills' ingot production averages 58 per cent of capacity.

Pittsburgh—Operations are fairly steady with ingot production continuing 50 to 55 per cent. Sheet schedules hold around 50 but tin plate is lower at 55. Strip continues 40 to 50 with pipe unchanged at 50.

Cleveland—Showing further decline to 12 active open hearths of the district's 34, the district's rate averages 35 per cent capacity. Corrigan, McKinney Steel Co. has dropped two to have four of 14 lighted for the week, and has two stacks in blast.

Chicago—Ingot output is a shade better at 58 per cent. Steelworks blast furnace activity is unchanged with 14 of the 36 stacks in blast. Gains in sheet and bar mill operations are offset by decreased plate mill activity.

Birmingham, Ala—Slight improvement is noted in operation schedules, four out of six open-hearth furnaces of Gulf States Steel Co. and a few of the shape mills putting out stock. Estimate of steel operations is now 50 per cent.

Tower Mile High Possible

New York—From an engineering standpoint it is feasible to erect a steel tower a mile high—the new Empire State building in New York breaking building records with 1048 feet plus a 200-foot mooring mast—but the tower would have to be 528 feet square at the base and would require 19,000 tons of steel. Thus said Gilbert Fish, consulting structural engineer for the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., before the American Welding society.

Concrete Bars

(*Concluded from Page 79*)

cago, North Shore & Milwaukee station at Winnetka, Ill., grade separation work in Chicago, and a chain of tourists' hotel-restaurant buildings.

Cincinnati—Western Hills viaduct here will require 4000 tons of reinforcing bars, and the Kentucky state bridge, Evansville, Ind., 675 tons.

Contracts Placed

4000 tons, Western Hills viaduct, Cincinnati; award deferred.

4000 tons, superstructure of section of main viaduct, terminal development between St. Antoine and Ottawa streets, Canadian National railways, Montreal, Que., to Dominion Bridge Co. Ltd., Montreal.

675 tons, Kentucky state bridge at Evansville, Ind.; bids opened at Indianapolis Oct. 28 and 30.

600 tons, senior high school, San Antonio, Tex., to Brandt Iron Works, San Antonio; Walsh, Burney & Key Inc., San Antonio, general contractor.

500 tons, medical building and garage, Pittsburgh, to McClintic-Marshall Co., Pittsburgh, through David T. Riffle, general contractor.

375 tons, bridge, Coplay, Pa., to Jones & Laughlin Steel Corp., Pittsburgh.

350 tons, 12-story Y. M. C. A., Dallas, Tex., to Kalman Steel Co., Chicago; N. Wohlfield, Dallas, general contractor.

300 tons, warehouse, Brunswig Drug Co., Los Angeles, to unstated interest.

250 tons, 9-story warehouse, Riley Co., Bergen street, Brooklyn, N. Y., to Edwards T. Ewards, Columbia, Pa.; William Kennedy Construction Co., Brooklyn, general contractor; Lewis & Leonard, architects.

250 tons, John Marshall school, Los Angeles, to unstated interest.

230 tons, Steinmetz senior high school, Chicago, to Inland Steel Co., Chicago.

200 tons, newspaper publishing building, North Wilcox street, Los Angeles, to unstated interest.

200 tons, Illinois road work, to Calumet Steel Co., Chicago.

190 tons, shoe shop, Sing Sing prison, New York, to Jones & Laughlin Steel Corp., Pittsburgh; Miller & Gaynor Co., Poughkeepsie, N. Y., general contractor.

160 tonse, warehouse, Beherer Co., Harrison, N. Y., to Kalman Steel Co., Chicago; I. Hopper's Sons Co., New York, general contractor.

150 tons, bars and shapes, school, Tuxedo Park, N. Y., to Truscon Steel Co., Youngstown, O., and United States Steel Products Co., through W. A. Berbusse Jr. Inc., general contractor.

150 tons, Mayfield dam, Fulton county, N. Y., for Board of Hudson river regulating district, to Albany Steel & Iron Supply Co., Albany, N. Y.; Richard E. Weber, 246 State street, Schenectady, N. Y., engineer and contractor.

135 tons, hospital, Waltham, Mass., to Truscon Steel Co., Youngstown, O.

100 tons, River apartment, Fifty-second street, New York, to National Bridge Works, Long Island City, N. Y.; James Stewart Co., general contractor.

Contracts Pending

900 tons, building, Campbell Soup Co., Camden, N. J.

630 tons, subway, route 108, section 9, Queens, N. Y., to 137th street at Hillside avenue; bids open Nov. 5, close Nov. 20.

600 tons, Paramount theater, Oakland, Calif.; bids being taken.

500 tons, civic stadium, lake front Cleveland; general contract let to W. J. Schirmer Co., Cleveland.

350 tons, building for University of California, Berkeley, Calif.; bids received.

310 tons, Higbee Co. department store, Cleveland; general contract let to Lundoff-Bicknell Co.. Cleveland.

260 tons, New York Central viaduct, Lackawanna, N. Y.; bids about Nov. 10.

200 tons, pumping station, Westchester county, N. Y.

200 tons, theater and store building, Davenport, Iowa; general contract to Lundoff-Bicknell Co., Chicago.

200 tons, John Marshall high school, Cleveland; bids after Nov. 1.

140 tons, bridge on Flagstaff highway, Phoenix, Ariz.; bids received.

135 tons, grade separation and bridge, Central Park avenue, Yonkers, N. Y.

125 tons, Randolph street viaduct and Illinois Central suburban station, Chicago.

100 tons, school, Benedictine Order of Cleveland, 10510 Buckeye road S. E., Cleveland; plans completed by Fox, Duthie & Foose, Cleveland, architects.

100 tons, building, Reserve Lithograph Co., East Ninth street, Cleveland; bids about Nov. 1.

Structural Inquries

(*Concluded from Page 79*)

cinnati; bids opened; award deferred.

2500 tons, Pennsylvania avenue subway, Philadelphia for Reading railway; bids in.

2158 tons, New York Central viaduct, Lackawanna, N. Y.; bids about Nov. 10.

2000 to 4000 tons, assembly plant, Ford Motor Co., Seattle; bids being taken.

1500 tons, tank shop, General Electric Co., Pittsfield, Mass.; bids being taken.

1000 tons, electric railway terminal and viaduct, Kansas City, Mo.

985 tons, foundry, National Transit, Pump & Machine Co., Oil City, Pa.; bids in.

900 tons, dormitory buildings, Howard university, Washington; bids in.

800 tons, John Marshall high school, Cleveland; plans out in November.

750 tons, apartment, East Fifty-second street, New York.

650 tons, office building, East Fifty-fourth street, New York.

600 tons, R-K-O theater, Denver.

550 tons, power house, Rock Island, Wash.; bids in.

500 tons, high school building, Chicago Heights, Ill.

450 tons, bridges for Missouri Pacific railroad, at Cricket, Ark.

445 tons, grade crossing elimination, New York Central railroad, Bowmansville, N. Y.

400 tons, Mascher street bridge, Philadelphia; general contract to Thomas Burke & Co., Philadelphia.

360 tons, finishing plant, Saylesville, R. I.

325 tons, Trempealeau county, Wisconsin, bridge; A. O. Clark, Wausau, Wis., low at $70,107.59; Worden-Allen Co., Milwaukee, second low at $71,-568.84.

300 tons, state highway bridge, Delaware county, Pa.; general contract to Central Pennsylvania Construction Co., St. Marys, Pa.

300 tons, bridge on Flagstaff highway, Phoenix, Ariz.; bids received.

300 tons, bridge Main Central railroad.

280 tons, grade elimination and bridge, Central Park avenue, Yonkers, N. Y.

Unstated tonnage, post office, custom house, etc., Fall River, Mass.; bids Nov. 6.

Unstated tonnage, post office, Mexia, Tex.; bids Nov. 10.

Unstated tonnage, governmental inspection station, St. Johns, N. D.; bids Nov. 18.

Unstated tonnage, post office, Harrodsburg, Ky.; bids Oct. 30.

United States exports of aircraft engines in June were largest to Canada which took 21, valued at $28,-745. Peru was second, taking 12 in number.

Pipe

Inquiry Rate Spurts—Los Angeles Wants 2516 Tons, West Orange 2100 Tons

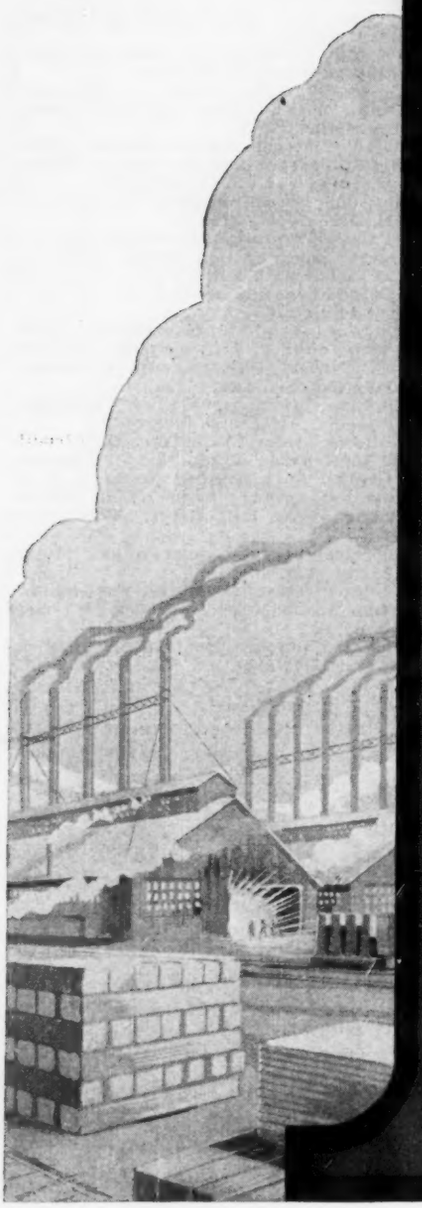
PIPE PRICES, PAGE 97

New York—Cast pipe inquiry is slightly heavier. Prices are firm on a basis of $36 to $37, eastern foundry. Foundries operate about 60 per cent. New inquiry is limited to fairly numerous scattered small lots but West Orange, N. J., will soon buy 2100 tons. New York City wants 400 tons through a contractor. That city's specifications now definitely eliminate extra enameling which caused additional foundry operations earlier this year. Pipe must still be cement lined, however. Colonie, N. Y., is asking bids on 400 tons. The water extension contract at Newton, N. J., has been awarded Charles Bang Warsaw, N. J. Steel pipe will be used on the Riverside drive connections with Hudson river bridge.

Boston—Principal cast pipe orders remain of a private character, mostly in carlots. The aggregate is fairly large. Marblehead, Mass., wants 750 tons of 16-inch.

Pittsburgh—Tubular products remain quiet. Standard pipe demand is light and spotty but a slight improvement in tonnage for heating purposes is noted by some interests. Oil country goods continue dull. Business in locomotive and boiler tubes and mechanical tubing lacks

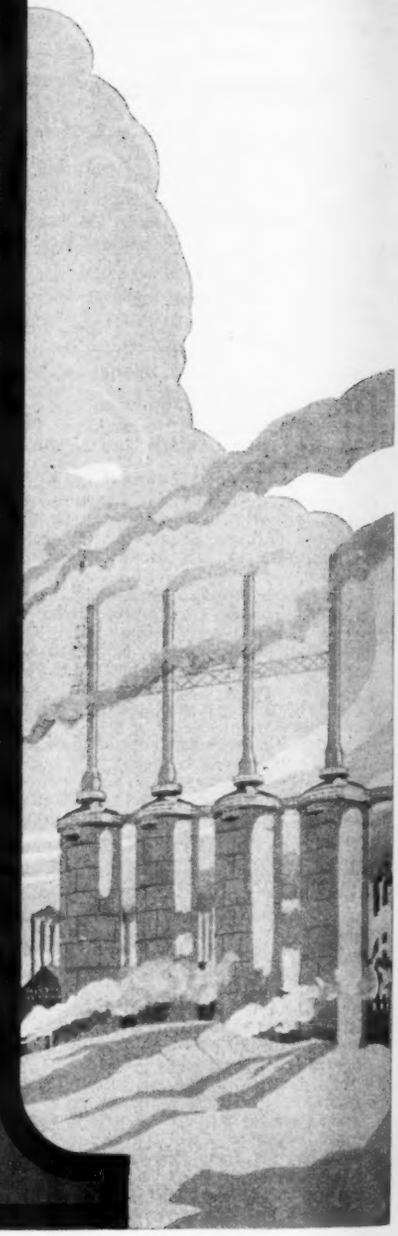
TENNESSEE STEEL



THOSE responsible for the conduct of any steel consuming activity are well aware of the fact that a dependable source of supply means more efficient results together with greater economies in their own business.

The name TENNESSEE has become a symbol of steel service to Tennessee's customers. They know that regardless of the type or magnitude of their project or endeavor, they can look to this reliable source for quality products manufactured and delivered to meet their specific requirements.

Products: Bars, Plates, Shapes, Sheets, Tool Steel, Forgings, Castings, Rails and Accessories, Semi-finished Material, Pig Iron.



Tennessee Coal, Iron & Railroad Company

General Offices: Brown-Marx Building, Birmingham, Ala.

SUBSIDIARY OF UNITED STATES STEEL CORPORATION

PRINCIPAL SUBSIDIARY MANUFACTURING COMPANIES OF UNITED STATES STEEL CORPORATION:

AMERICAN BRIDGE COMPANY
AMERICAN SHEET AND TIN PLATE COMPANY
AMERICAN STEEL AND WIRE COMPANY
CARNEGIE STEEL COMPANY
COLUMBIA STEEL COMPANY
CYCLONE FENCE COMPANY
FEDERAL SHIPB'LDG. & DRY DOCK CO.
ILLINOIS STEEL COMPANY
NATIONAL TUBE COMPANY
THE LORAIN STEEL COMPANY
TENNESSEE COAL, IRON & RAILROAD CO.
UNIVERSAL ATLAS CEMENT COMPANY

Pacific Coast Distributors — Columbia Steel Company, San Francisco, Los Angeles, Portland, Seattle, Honolulu. *Export Distributors* — United States Steel Products Company, New York City

improvement. Activity in line pipe is confined to discussions of prospective 1931 work. Pipe mill operations continue 50 per cent.

Cleveland — Jobber turnover of standard full weight merchant pipe is remarkably well sustained, considering the poor real estate market with consequent limited building construction. A large order for tubular products for the Higbee Co. department store now is up, estimated at 500 tons or more, including conduit.

Chicago—Chicago is expected to issue inquiry shortly for 500 to 1000 tons of 6 and 8-inch cast pipe. Columbus, O., is taking bids on 500 tons of 8-inch cast. Delivered prices are $45.20 to $46.20, Chicago, for contract work. Due to the short period remaining for pipe laying, several rush private orders have been closed, totaling 1000 to 1500 tons of miscellaneous cast sizes. Indications are utility winter buying is shaping up.

Birmingham, Ala.—Cast pipe production is being curtailed to harmonize with demand. Steady shipments cause backlogs to dwindle. The base prices, $37 to $38 for 6-inch and larger, are firm.

Contracts Placed

450 tons, 6 and 8-inch cast pipe for Brooklyn Union Gas Co., Brooklyn, N. Y., to Warren Foundry & Pipe Co., Phillipsburg, N. J.

275 tons, 8 and 12-inch class B cast pipe, Sixth avenue N. W., improvement, Seattle, to American Cast Iron Pipe Co., Seattle.

170 tons, 6 and 8-inch cast pipe for Chippewa Falls, Wis., to Central Foundry Co., Joplin, Mo.

Contracts Pending

2516 tons, 6 to 12-inch class 150 cast pipe for Los Angeles; bids Oct. 20.

2100 tons, 16 and 24-inch cast pipe, trunk sewer, West Orange, N. J., bids Oct. 28; Alex Potter, New York, engineer.

750 tons, 16-inch cast pipe for Marblehead, Mass.

500 tons, 8-inch cast pipe for Columbus, O.; bids Oct. 23.

400 tons, 6 to 12-inch cast iron pipe, for department of water supply, gas and electricity, New York; contractor's letting, bids Oct. 28.

400 tons, 6, 8 and 10-inch cast iron pipe for Colonie, N. Y., water main extension, Latham's water district; also 200,000-gallon steel water tank, bids Oct. 29.

100 tons or more, various sizes, water main extension and pumping station, Newton, N. J.; Charles Bang, Warsaw, N. Y., general contractor; Thomas Bowe, New York, engineer.

100 tons, 20-inch cast pipe, for Rahway, N. J.

100 tons, 16-inch class 150 cast pipe for Eureka, Calif.; bids Oct. 21.

Unstated tonnage for William Bay, Wis.; bids close Nov. 10 on furnishing and laying 4720 lineal feet of 8-inch, 15,161 lineal feet of 6-inch, and 810 lineal feet of 4-inch mains, 33 hydrants, etc.; Helen A. Bradt, village clerk.

Wire

Fairly Steady Buying Holds and Prices Are Shaded Little—Nails Fail to Gain Strength

WIRE PRICES, PAGE 75

Chicago—Shipping orders from dealers and jobbers are maintaining the rate set early in the month, but it is indicated shipments will fall below September. Jobber specifications for common wire products have dropped from September, due in part to declines in fencing material. Dealer orders also are lighter. Specifications for manufacturers' wire are light. Wire nail prices show weakness. Plain wire is quoted 2.35c, Chicago or western mills.

Worcester, Mass.—Wire alone of the local industries manages to keep steady production. Small orders for immediate use predominate. Wire for automobile accessory uses is slow and building requirements are falling off. Prices of plain bright wire to dealers remain at 2.40c, base, Worcester.

New York—Dullness continues in rails, holding at $1.95 to $2, Pittsburgh, with occasional concessions. Plain bright wire is 2.30c, Pittsburgh, and quiet.

Philadelphia—Plain manufacturers' wire is quoted at 2.30c, Pittsburgh, but this is shaded occasionally. Nails are $1.90 to $2, Pittsburgh.

Pittsburgh—Wire tonnages are holding at about the September rate. Manufacturers' wire tonnage is off moderately in some directions, including automotive demand. Jobbers are placing only small lots and continue to maintain small stocks. Wire nails are fairly well maintained at $2 despite occasional reports of lower prices in the East. Plain wire continues 2.30c with wire rods $36.

Cleveland—A few orders in carload lots for manufacturers' wire were received here last week and in each case 2.30c, Cleveland, applied. Several jobber orders for nails likewise were received and while some producers are endeavoring to maintain $2. Cleveland, as a minimum, $1.90 continues to appear from time to time. Some automobile companies are ordering cement coated nails for shipping parts to assembly plants and for exporting cars and parts.

Bolt, Nuts, Rivets Slow; Production at Low Rate

Bolts, Nuts, Rivets Prices, Page 75

Pittsburgh—Improvement in specifications for bolts, nuts, and rivets still is lacking. Orders remain at the low rate of the past two months and operations continue around 40 per cent. Prices hold at 73 off for bolts and nuts and 2.75c for large rivets.

Chicago—Specifications for bolts, nuts and rivets seem likely to remain slightly under September. Increased schedules of several implement makers about Nov. 1 are expected to aid specifications. Discounts for bolts and nuts are unchanged on the basis of 73 off.

New York—Eastern bolt and nut makers find operations slowing and now are close to 40 per cent. Demand is devoid of important tonnages and prices are unchanged.

Cleveland—Orders for nuts, bolts and rivets are showing a slight gain over the September rate for the comparable period, less than 10 per cent. Each order is small and shipment is wanted quickly. Operations are around 40 or 45 per cent.

Semifinished Orders and Shipments Small

Semifinished Prices, Page 86

Pittsburgh — Semifinished steel business holds at the light rate of the preceding several weeks. Spot orders are for small lots and consumers are disinterested in inquiries for larger tonnages. On rerolling billets, slabs, and sheet bars $31 usually is quoted, although it is believed any substantial tonnage could shade this figure. Wire rods and forging billets continue $36.

Philadelphia—Billet and wire rod specifications are small and new business is negligible. Prices are unchanged.

Youngstown — With independent sheet and strip mills operating at a little less than 50 per cent little new business is being done in billets, sheet bars and slabs. Occasional sales are made, however, at $31, Youngstown and Pittsburgh.

Cleveland—The market for semifinished steel is easier, demand being insufficient to sustain operators at their recent rate. The leading merchant here is operating four of its 14 open hearths. The nominal asking price of sheet bars, billets and slabs, in the absence of sales, is $31, base, Cleveland and Youngstown.

Raw Material Prices

Pig Iron

Per Gross Ton

FOUNDRY, NO. 2

Chicago, furnace	$17.50
Pittsburgh, district fur.	17.50
Pittsburgh, delivered	18.13 to 18.63
Valley, furnace	17.00
Cleveland fur., local del.	17.50
Philadelphia, delivered	18.76 to 19.76
Virginia, furnace	17.75
Granite City, Ill., fur.	17.50
Buffalo, fur., local del.	17.50
Buffalo, del. Boston	21.41 to 21.91
Buff., all-rail, Brooklyn	20.41 to 20.91
Buff., all-rail, Newark	18.78 to 19.28
Ala., Bir. fur., local del.	14.00
Alabama, del. Chicago	17.51 to 18.01
Alabama, del. St. Louis	16.42
Alabama, del. Cincinnati	15.19 to 16.19
Alabama, del. Cleveland	18.51
Ala., Phila., dock del.	16.75 to 17.25
Ala., Balt., dock del.	16.50 to 17.00
Alabama, New York dock	17.00
Ala., Boston dock del.	17.25
Tenn., Bir. base, local del.	14.00
Tennessee, del. Cin.	15.19 to 16.69
Montreal, delivered	23.50
Toronto, delivered	22.10

FOUNDRY, NO. 2X

Buffalo, fur., local del.	18.00
Buff., all-rail, Brooklyn	20.91 to 21.41
Buffalo, all-rail Newark	19.28 to 19.78
Buffalo, del. Boston	21.91 to 22.41
Virginia furnace	18.25
Eastern, del. Phila.	19.26 to 20.26

FOUNDRY, NO. 1X

Buffalo fur., local del.	19.00
Eastern, del. Phila.	19.76 to 20.76

MALLEABLE

Chicago, furnace	17.50
Cleveland fur., local del.	17.50
Pittsburgh district fur.	18.00
Pittsburgh, delivered	18.63 to 19.13
Valley furnace	17.50 to 18.00
Buffalo fur., local del.	18.00
Eastern Penna., delivered	19.26 to 20.91
Granite City, Ill., fur.	17.50
Montreal, delivered	24.00
Toronto, delivered	22.60*

BASIC

Pittsburgh dist. fur.	17.50
Pittsburgh, delivered	18.13 to 18.63
Eastern Penn., del.	17.50 to 18.00
Buffalo fur., local del.	17.00
Montreal, delivered	22.50
Valley furnace	17.00

BESSEMER

Valley furnace	17.50 to 18.00
Pittsburgh, delivered	18.63 to 19.13
Pittsburgh, furnace	18.00

LOW PHOS

Valley fur., standard	27.00
Philadelphia, standard	24.76 to 28.79
Furnace, copper-bearing	23.00 to 23.50

GRAY FORGE

Valley furnace	16.50
Pittsburgh district fur.	17.00
Pittsburgh, delivered	17.63 to 18.13

CHARCOAL

Lake Superior, del. Chicago	27.04

SILVERY

Jackson County, O., fur., in per cents 6—$21; 7—$21.50; 8—$22; 9—$22.50; 10—$23; 11—$24; 12—$25; 13—$27.

BESSEMER FERROSILICON

Jackson County, O., fur., in per cents 10—$25; 11—$26; 12—$27; 13—$29; 14—$31; 15—$33; 16—$35.

Coke

Prices Per Net Tons

Beehive Ovens

Connellsville furnace	$2.60
Connellsville foundry	3.50 to 4.85
New River foundry	6 00
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.25

By-Product Foundry

Newark, N. J., del.	$9.00 to 9.40
Chicago ovens	8.00
New England, del.	11.00
St. Louis, del.	9.00
Birmingham, ovens	5.00
Indianapolis, del.	8.25
Ashland, Ky., ovens, Connell. basis.	5.50
Portsmouth, O., ovens, Connell. basis	5.50
Buffalo ovens	8.00 to 8.50
Detroit, ovens	8.50
Philadelphia, del.	9.00

Iron Ore

LAKE SUPERIOR ORE

Gross Ton, 51½%, Lower Lake Ports

Old range bessemer	$4.80
Mesabi bessemer	4.65
Old range nonbessemer	4.65
Mesabi nonbessemer	4.50
High phosphorus	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%, contract	10.00
Copper-free low phos. 58-65%	nom.

FOREIGN ORE

Cents per units, alongside docks Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-10% manganese	11.00
North African low phosphorus	10.50
Swedish basic, 65%	9.50
Swedish low phos.	11.00
Spanish, North African basic, 50 to 60%	9.50
Newfoundland fdy., 55%	9.00
Tungsten, spot and future short ton unit, duty paid	$12.50
Chrome ore, 48% net ton c.i.f.	$21.50 to 22.50

Manganese Ore

Prices, not including duty, are cents per unit; cargo lots.

Caucasian, 52-55%	27 to 28 cents
Indian, 48-50%	27 to 28 cents
Brazilian, 46-48%	25 cents

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. Works

First Quality

Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Maryland	$43 00
Georgia, Alabama	40.00 to 47.00

Second Quality

Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Marvland	35.00 to 38.00
Georgia, Alabama	30.00 to 35.00

SILICA BRICK

Pennsylvania	43.00
Joliet, Ill., East Chicago, Ind.	52.00
Birmingham, Ala.	50.00 to 51.00

MAGNESITE BRICK

Pet net ton

9 x 4½ x 2½	65.00

MAGNESITE

Dead burned grain, net ton, Chester, Pa., or Baltimore bases	40.00
Domes, Chewelah, Wash., base	22.00

CHROME BRICK

Net ton, Chester, Pa., and Baltimore base, 9 x 4½ x 2½	45.00

Semifinished Steel

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$31.00
Pittsburgh, bessemer	31.00
Youngstown	31.00
Cleveland	31.00
Philadelphia	36.30
Chicago	32.00
Forging, Chicago	37.00
Forging, Pittsburgh	36.00
Forgings, Philadelphia	41.30

SHEET BARS

Pittsburgh	$31.00
Youngstown	31.00
Cleveland	31.00
Chicago	32.00

SLABS

Pittsburgh	$31.00
Youngstown	31.00
Cleveland	31.00

WIRE RODS

Pittsburgh, Cleveland	$36.00
Chicago	37.00

SKELP

All grades, Pittsburgh	1.60c to 1.70c

Ferroalloys

(In dollars, except Ferrochrome)

*Ferromanganese, 78-82%, tidewater, duty paid	$99.00
*Ferromanganese, del. Pittsburgh	103.79
Spiegeleisen, 19-21%, domestic fur. spot†	33.00
*Ferrosilicon, 50 per cent, freight all., c. l.	83.50
Do, less carload	88.50
Do, 75 per cent	13.00 to 15.00
Ferrochrome, 66-70 chromium, 4-6 carbon. cts. lb., con., del.	11.00
Do, for spot delivery	11.50
Ferrotungsten, stand., lb. cont.	1.10 to 1.15
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.65
Ferro-carbon-titanium carload producers' plants, net ton	160.00
Do, one ton to c. l.	170.00
Ferrophosphorus, per ton, carload 17-19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic per ton carload, 23-25% f.o.b. Anniston, Ala., 24%	122.50

†Carloads. Differentials apply to large quantities.

*To users of carloads to 500 tons annually. Differentials apply to users of larger quantities.

Fluorspar

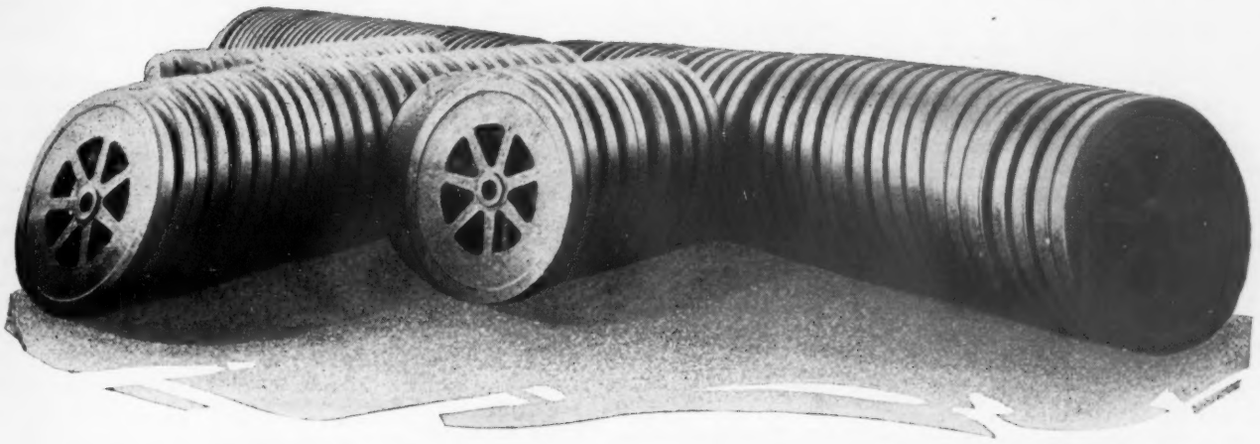
85 and 5 per cent grade

Washed gravel Kentucky and Illinois mines, per net ton	$17.25
Washed gravel, import duty paid east, tide, gross ton	19.50

FARRELL'S EIGHTY FIVE -85

TOUGH-RIGID-STRONG-WEAR RESISTING CAST STEEL

TRADE MARK



FARRELL'S 85 HELPS MOVE MOUNTAINS!

These wheels, together with crawler shoes, draw bars, frames, beams, and similar parts, compose a type of crawler dump wagon that is making industrial history throughout the nation.

It is in this role that the special purpose cast steel, Farrell's 85, is playing an important part in mountain-moving, extensive excavation programs, levee work, road building, log hauling, in quarries, strip mines and such jobs.

Its inherent physical properties present real resistance to the punishment inflicted by shovel loading and the battering and pounding of travel over all kinds of surfaces.

Naturally, to provide substantial equipment, the front line builders of dump wagons are using the various grades of Farrell's 85 to fit each part to its particular job.

Farrell's 85 will add ruggedness and long life to your equipment! Allow us to submit recommendations and quotations for at least a trial to demonstrate its merits.

Farrell-Cheek Steel Foundry Company, Sandusky, Ohio

NEW YORK OFFICE—136 Liberty St. Phone: Hitchcock 6137
PHILADELPHIA OFFICE—2401 Chestnut St. Phone: Rittenhouse 9840
BIRMINGHAM OFFICE—2124 Highland Ave. Phone: 4-2393
CHICAGO OFFICE—5 So. Wabash Ave. Phone: Franklin 1805
DULUTH OFFICE—518 Providence Bldg. Phone: Melrose 1095-J
DENVER OFFICE—3417 E. 14th Ave.
ST. LOUIS OFFICE—907 Security Bldg. Phone: Garfield 5222

FARRELL-CHEEK

Pig Iron

Market Is Easier, on Small Volume of Sales—Valley Malleable and Bessemer Down 50 Cents

PIG IRON PRICES, PAGE 86

Pittsburgh—Demand for pig iron is no more active than recently, limited to occasional sales of small lots. Shipments, however, are slightly ahead of the rate a month ago. Prices continue subject to shading and recent concessions lower quotations on bessemer and malleable 50 cents a ton, giving a range of $17.50 to $18, valley, and $18, Pittsburgh furnace, for both. Basic is nominally quoted $17, valley, but sales are lacking to substantiate this price. No. 2 foundry usually is $17, valley. Inquiry is lacking.

Boston—Sales of pig iron dropped sharply to 2000 tons in the past week. The melt has not improved and deliveries are slow. No. 2 Buffalo iron still is available at $15.50, furnace, and eastern makers are meeting this price.

New York—Pig iron sales have declined, aggregating 6000 tons in the past week. Shipments, however, are reported to be increasing. Prices are unchanged at $15.50 to $16, furnace, for Buffalo iron, and $17, delivered New York docks, for southern iron. Worthington Pump & Machinery Corp., has purchased 550 tons for its Harrison, N. J., plant and 250 tons for its Buffalo plant. A New England consumer placed 1000 tons of malleable.

Buffalo—Buying has not been greatly stimulated by the reduction of district prices a week ago, although a number of consumers have covered early requirements. Buffalo furnaces booked less than 5000 tons in the past week. Shipments are declining after gaining earlier in the month.

Philadelphia — The market is quieter, and requests for shipments are fewer than recently. Several inquiries for iron for first quarter from Baldwin Locomotive Works, Philadelphia, Standard Steel Works Co., Philadelphia, and others apparently are dormant for the present.

Youngstown, O.,—Pig iron purchases continue small. The foundry grade now is $17, base, valley, and malleable is $17.50.

Cleveland—Prices equivalent to $15.50 to $15.75, base, lake furnace, have been quoted recently on inquiries for substantial tonnages of pig iron in competitive territory, marking a reduction of 25 to 50 cents from the lowest offers made two weeks ago. Makers have expressed a willingness to absorb freight differentials. In some instances furnace nearest to consumers have lost in competition from others. Prices for local delivery appear to be well maintained. Cleveland furnaces hold to $17.50, base, for the Cleveland switching area. In nearby territory $17 is the usual price, while for distant shipment prices are governed largely by competition, in which other lake and central Ohio furnace share. A Muncie, Ind. melter will probably close this week for 3000 tons of malleable. Westinghouse Electric & Mfg. Co. has not as yet placed its order for 1000 tons for its Cleveland plant. Lake furnaces with headquarters in Cleveland booked 16,500 tons in the week, slightly more than in the week preceding. The average rate of October shipments is below that of September.

The Corrigan, McKinney Steel Co. has blown out another blast furnace, now operating two of its four stacks at Cleveland.

Cincinnati—Sales of pig iron the past week slightly exceeded 1500 tons. It is indicated orders for first quarter will be accepted at present prices. Quotations of $11.50, base, Birmingham, may be obtained on small lots of southern iron. Blowing out of the Hamilton furnace of the American Rolling Mill Co., Middletown, O., so far has not caused a stiffening of prices of northern iron. An inquiry for 500 tons of southern iron for a central Indiana melter is current.

Chicago—Forward interest features the pig iron market, although the sales volume still is off from the September buying flurry. Orders are fair. About 2000 tons of foundry is pending on inquiry in the Milwaukee district for the first quarter; 2000 tons to 2500 tons is active in the Chicago district, and about 3000 tons is pending in northern Indiana. The price is steady at $17.50, base, Chicago furnace. Southern iron is offered at $11.50, base, Alabama furnace.

St. Louis—Sellers report the pig iron market is the quietest noted thus far this year. Sales in this district during the past week amounted to less than 500 tons. Some requests have been received to slow up shipments. Southern iron is offered in carload lots by at least one maker at $11.50, base, furnace. An order for No. 3 southern iron was reported booked at $11, furnace. Considerable irregularity exists in northern iron prices. Special terms are being made in some instances to customers having high-price contracts, to enable them to reduce their average. The market at Granite City on malleable and No. 2 foundry is $17.50.

Birmingham, Ala.—Small-lot business, with an occasional order for a large tonage, features the southern market. Republic Steel Corp. booked one for 6000 tons. The probable output of southern iron in October has been sold. No iron is going to yard stocks now, with eight blast furnaces operating. Prices are unchanged.

Toronto, Ont.—Pig iron production is at the lowest rate of the year. Demand is limited to small lots for prompt delivery. Prices are steady.

Ferroalloy Shipments Moving at Slower Rate

Ferroalloy Prices, Page 86

New York—Specifications for domestic spiegeleisen are slow, with the market unchanged at $33, furnace, subject to differentials for quantities. Ferromanganese demand also is lagging, with the market steady at $99, duty paid, for carloads to 500 tons annually. Special ferroalloys are holding their own after a little improvement recently in specifications. Tungsten is dull but unchanged, with wolframite ore about $12.50 a short ton unit duty paid, and scheelite $13 to $13.50.

Pittsburgh — Specifications for ferroalloys have moderated slightly since the first of the month. Shipments of ferromanganese and spiegeleisen reflect lighter steelmaking operations and are slower than a month ago. Prices are unchanged, ferromanganese continuing $103.79, delivered, and spiegeleisen $33.

Chicago — October shipments of ferroalloys indicate a decline from September, despite slightly more orders from steel foundries. Little demand exists for spiegeleisen. The carload price is nominal at $33, eastern furnace, for the 19 to 21 per cent grade. Ferromanganese and 50 per cent ferrosilicon are unchanged.

Dutch East Indies and Venezuela were our largest customers in June for casting and oil line pipe, taking almost one-half of our total export in this tubular product.

Scrap

Drastic Decline in Prices of 50 Cents to $2 Brings Lowest Level in Years—Buying Is Slow

Chicago—Renewed short offerings and continued resistance by melters have definitely turned the tide of the scrap market. Prices are off 50 cents and $1 a ton for a number of grades. Some quotations for melting steel are $11.00. Rolling rails, cast borings, several grades of machinery and railroad cast, sheet clippings, steelworks turnings, iron rolling mill grades, and several specialties have dropped $1 a ton, while electric furnace turnings and other specialties have dropped $2 a ton. Some of these cuts have been arbitrary reductions of dealer listings and represent prices at which dealers can buy, rather than consumer bookings. Even with material at reduced prices, dealers have been unable to increase their forward com-

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross tons delivered to consumers, except where otherwise stated.

HEAVY MELTING STEEL

Birmingham	10.75 to 12.00
Boston, dealers	8.00 to 8.50
Buffalo, No. 1	12.25 to 13.00
Buffalo, No. 2	10.50 to 11.00
Chicago	11.00 to 11.50
Cinci., deal.	10.25 to 10.75
Cleve., No. 1	11.00 to 11.25
Cleve., No. 2	10.25 to 10.50
Det., No. 1 deal.	10.75 to 11.25
Det., No. 2 deal.	9.25 to 9.75
E. Pa. del. mill	12.50
N. Y. del. R. R.	8.50 to 9.50
N. Y. deal. No. 2	6.25 to 6.50
N. Y., deal. yd.	6.00 to 6.50
Pitts. No. 1	14.25 to 14.75
St. L. No. 1 sel.	11.50 to 12.00
Federal, Ill.	11.00 to 11.25
Granite C., Ill.	9.75 to 10.00
Valleys No. 1	14.50 to 15.00

COMPRESSED SHEETS

Buffalo, dealers	10.50 to 11.00
Chicago	9.25 to 9.75
Cleveland	10.50 to 10.75
Detroit, dealers	10.50 to 11.00
E. Pa. new mat.	11.50 to 12.00
Pittsburgh	14.00 to 14.50
Valleys	14.00 to 14.50

BUNDLED SHEETS

Buffalo	8.00 to 8.50
Cinci., deal.	9.25 to 9.75
Cleveland	8.00 to 8.50
Eastern Pa.	9.50
Pittsburgh	12.50 to 13.00
St. Louis	6.50 to 7.00

SHEET CLIPPINGS LOOSE

Chicago	6.50 to 7.00
Cincinnati	7.25 to 7.75
Detroit, dealers	7.75 to 8.25
St. Louis	6.50 to 7.00

STEEL RAILS SHORT

Birmingham	12.00 to 12.50
Boston, dealers	7.00 to 8.50
Buffalo	15.50 to 16.00
Chicago (3 ft.)	13.50 to 14.00
Chicago (2 ft.)	14.00 to 14.50
Cinci., deal.	15.75 to 16.25
Detroit, deal.	14.50 to 15.00
Pitts. (open-hearth, 3 ft. and less)	16.00 to 16.50
St. Louis	14.50 to 15.00

STOVE PLATE

Birmingham	9.00 to 10.00
Boston, con.	8.00 to 8.50
Buffalo	9.75 to 10.25
Chicago, net	8.00 to 8.50
Cinci., deal. net	5.75 to 6.25
Det., net, deal.	7.50 to 8.00
Eastern Pa.	9.50
N. Y., deal. mill	6.00
St. Louis	9.00 to 9.50

COUPLERS, SPRINGS

Buffalo	14.75 to 15.25
Chicago	12.50 to 13.00
Eastern Pa.	16.00 to 17.00
Pittsburgh	17.00 to 17.50
St. Louis	12.50 to 13.00

ANGLE BARS—STEEL

Chicago	13.00 to 13.50
St. Louis	11.00 to 11.50

LOW PHOSPHORUS

Buf., billets and bloom crops	16.50 to 17.00
Cleveland bil. and bloom crops	17.50
Eastern Pa.	17.50 to 18.00
Pittsburgh	8.25 to 8.75
bloom crops	19.00 to 20.00
Pitts. sheet bar crops	17.50 to 18.00

FROGS, SWITCHES

Chicago	12.25 to 12.75
St. Louis	12.25 to 12.75

SHOVELING STEEL

Chicago	11.50 to 12.00
Cleveland	7.50 to 8.00
St. Louis	11.00 to 11.50

RAILROAD WROUGHT

Birmingham	9.50 to 10.00
Boston, dealers	8.00 to 8.50
Buffalo, No. 1	9.00 to 9.50
Buffalo, No. 2	12.50 to 13.00
Chicago, No. 1	10.65 to 11.25
Chicago No. 2	11.50 to 12.00
Cinci., No. 2	10.25 to 10.75
Eastern Pa.	14.00 to 14.50
N. Y., No. 1 deal.	10.00 to 10.50
Pitts. No. 2	14.25 to 14.75
St. Louis, No. 1	9.00 to 9.50
St. Louis, No. 2	11.00 to 11.25

SPECIFICATION PIPE

Boston	7.00 to 7.50
Eastern Pa.	12.00 to 12.50
N. Y., deal.	7.25 to 7.50

BUSHELING

Buffalo, No. 1	10.50 to 11.00
Chicago, No. 1	8.50 to 9.00
Cinn., No. 1 dl.	9.25 to 9.75
Cinn., No. 2	6.00 to 6.50
Cleve., No. 2	7.00 to 7.25
Detroit, No. 1 new deal.	9.25 to 9.75
St. L. No. 1	8.00 to 8.50
Val. new No. 1	13.50 to 14.00

MACHINE TURNINGS

Birmingham	7.50 to 8.00
Boston, dealers	3.60 to 4.10
Buffalo	8.00 to 8.75
Chicago	5.00 to 5.50
Cinn., deal.	6.25 to 6.75
Cleveland	6.00 to 6.25
Detroit	4.50 to 5.00
Eastern Pa.	7.50 to 9.00
N. Y., deal.	5.00 to 5.50
Pittsburgh	7.00 to 7.50
St. Louis	6.00 to 6.50
Valleys	9.50 to 10.00

BORINGS AND TURNINGS For Blast Furnace Use

Boston	3.10 to 3.50
Buffalo	8.50 to 9.00
Cinn., deal.	6.00 to 6.50
Cleveland	7.50 to 7.75
Detroit, deal.	4.75 to 5.25
Eastern Pa.	7.00 to 8.50
N. Y., deal.	4.00
Pittsburgh	8.25 to 8.75

CAST IRON BORINGS

Birming., chem.	12.50 to 13.00
Birming., plain	7.50 to 8.00
Boston, chem.	9.00 to 9.50
Boston, deal.	3.60 to 4.10
Buffalo	8.50 to 9.00
Chicago	5.50 to 6.00
Cinn., deal.	6.50 to 7.00
Cleveland	7.50 to 7.75
Detroit, deal.	4.75 to 5.50
Eastern Pa.	8.50
E. Pa. chem.	14.00 to 14.50
N. Y., deal.	4.50
Pittsburgh	8.25 to 8.75
St. Louis	5.50 to 6.00

PIPE AND FLUES

Cinn., deal	8.00 to 8.50

RAILROAD GRATE BARS

Buffalo	8.00 to 8.50
Chicago, net	8.00 to 8.50
Cincinnati	7.00 to 7.50
Eastern Pa.	9.50 to 10.00
N. Y., deal.	6.50 to 7.00
St. Louis	10.00 to 10.25

FORGE FLASHINGS

Boston, deal.	6.10 to 7.00
Buffalo	10.50 to 11.00
Cleve. ov. 10 in.	10.00 to 10.50
Detroit	9.25 to 9.75

FORGE SCRAP

Boston, deal.	5.50 to 6.00
Chicago	14.50 to 15.00
Eastern Pa.	11.00 to 11.50

ARCH BARS, TRANSOMS

Chicago, net	13.00 to 13.50
St. Louis	13.00 to 13.50

AXLE TURNINGS

Boston, deal.	6.75 to 7.00
Buffalo	11.00 to 11.50
Chi., steelworks	8.50 to 9.00
Cleveland	11.00 to 11.50
Eastern Pa.	11.50 to 12.00
Pittsburgh	12.50 to 13.00
St. Louis	9.25 to 9.75

STEEL CAR AXLES

Birmingham	16.50 to 17.50
Bos., ship. pt.	16.50 to 17.00
Buffalo	16.00 to 16.50
Chicago	16.25 to 16.80
Eastern Pa.	20.50 to 21.00
St. Louis	15.00 to 15.50

SHAFTING

Bos., ship. pt.	13.00 to 14.00
Chicago	15.10 to 15.70
Eastern Pa.	18.50
N. Y., deal.	13.00 to 14.00
St. Louis	13.00 to 13.50

CAR WHEELS

Birming., iron	10.00 to 11.00
Boston, iron	14.00 to 14.50
Buffalo, iron	13.50 to 14.00
Buffalo, steel	15.00 to 15.50
Chicago, iron	12.50 to 13.00
Chi., roll steel	14.50 to 15.00
Cincinnati	12.00 to 12.50
Pitts., iron	14.00 to 14.50
Pitts., steel	17.00 to 17.50
St. Louis iron	11.00 to 11.50
St. Louis steel	14.00 to 14.50
E. Pa. steel	16.75 to 17.00
E. Pa. iron	14.50 to 15.00

NO. 1 CAST SCRAP

Birming., cup.	11.00 to 11.50
Buffalo (mac.)	11.00 to 11.50
Boston, textile	11.00 to 11.50
Chicago, mach.	12.35 to 12.90
Chi., railroad	10.65 to 11.20
Chicago, agri.	10.35 to 10.90
Cinn., mach. cup., gross	14.50 to 15.50
Cleve. cupola	13.50 to 14.00
Det., net deal	8.50 to 9.00
E. Pa. cupola	13.50
N. Y. cup. deal.	9.50 to 9.75
N. Y., del. local foundries	14.00
Pitts., cupola	13.50 to 14.00
San Fran., del.	13.50 to 14.00
Seattle	14.00 to 14.25
St. L. No. 1 ma.	10.75 to 11.25
St. L. No. 1	10.60 to 10.50

HEAVY CAST

Boston	10.50 to 11.00
Bos. Mach. cast	12.50 to 13.50
Buffalo, break	8.00 to 8.50
Cleve., break	8.00 to 8.50
Detroit, auto, net deal.	10.50 to 11.00
Det., break., dl.	7.00 to 7.50
Eastern Pa.	11.00 to 11.50
N. Y. No. 1 dl.	7.00 to 8.00
N. Y. break. dl.	7.75 to 8.50
Pittsburgh	10.50 to 11.00

MALLEABLE

Boston R. R.	14.00 to 14.50
Buffalo	14.50 to 15.00
Chicago, agri.	11.50 to 12.00
Chicago, R. R.	13.00 to 13.50
Cinn., R. R. dl.	12.50 to 13.00
Cinn., agri., dl.	12.50 to 13.00
Cleve., rail	14.50 to 15.00
Det. auto deal.	12.50 to 13.00
St. Louis, rail	10.00 to 10.50

RAILS FOR ROLLING 5 feet and over

Birming. cup.	12.50 to 13.50
Boston	10.00 to 10.25
Buffalo	11.00 to 12.00
Chicago	13.50 to 14.00
Eastern Pa.	13.50 to 14.00
New York	9.50 to 10.00
St. Louis	13.50 to 14.00

LOCOMOTIVE TIRES

Chicago, cut	14.00 to 14.50
St. L. No. 1	13.00 to 13.50

LOW PHOS. PUNCHINGS

Chicago	13.00 to 13.50
Pittsburgh	16.00 to 16.50
Eastern Pa.	16.00 to 17.00
Buffalo	16.00 to 16.50

Kind Words . . . for the harassed P. A.

Hand-to-mouth buying is no fun for the Purchasing Agent.

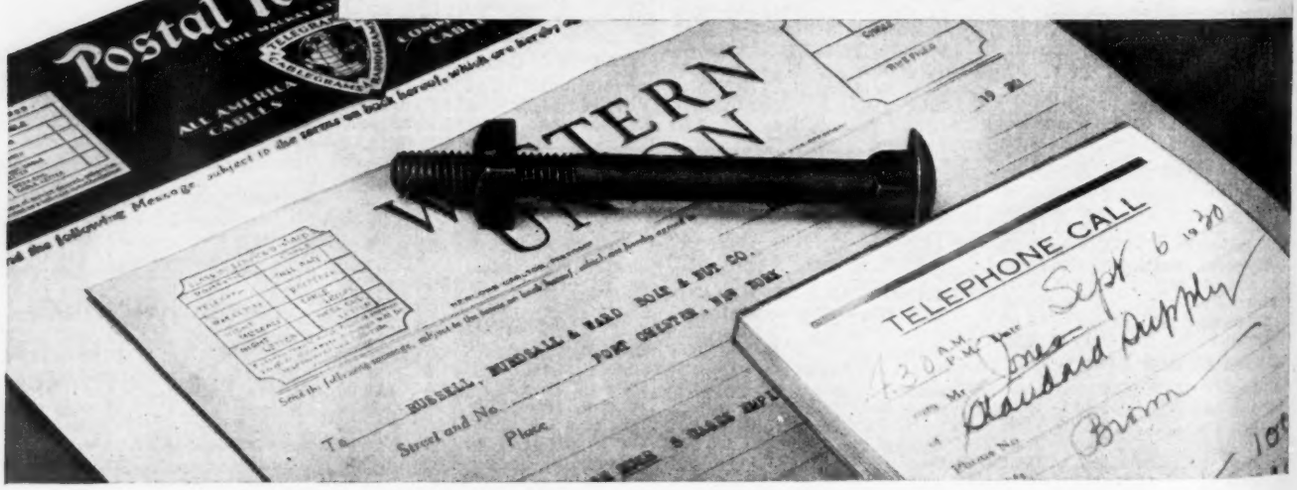
The order that is delayed until the last minute for fear the job won't go through, requires immediate delivery to get that same job out quickly . . . to get paid for it quickly.

If you are forced to buy bolts on this basis it is well to remember Russell, Burdsall & Ward's three strategically located plants—overnight delivery to most points.

RUSSELL, BURDSALL & WARD BOLT AND NUT COMPANY

PORT CHESTER, N. Y. ROCK FALLS, ILL. CORAOPOLIS, PA.

Philadelphia · Chicago · Detroit · San Francisco · Los Angeles · Seattle · Portland



mitments. Further restrictions of shipments by steelworks consumers have speeded the depressed market.

Boston—Except for one or two scrap grades the price situation remains weak and shows a falling off in the past week. Business is limited to scattered carlots. There has been rather a good pickup in the buying of pipe, resulting in a firm price for that grade.

New York—Placing of No. 1 railroad steel, estimated at more than 15,000 tons, at $12.50, delivered, for the Lukens Steel Co., Coatesville, Pa., features activity in scrap. This interest also purchased a tonnage of heavy breakable cast at $11 and $11.50, delivered. This is a reduction in both instances. A Florence, N. J., consumer also has bought heavy breakable cast at a reduction, paying $11, delivered. As a result dealers' buying prices on cast have been reduced to a spread of $7 to $8, New York. The reduction at Coatesville and a decline of 50 cents a ton for Buffalo have lowered the dealers' buying prices on No. 1 railroad steel to a spread of $8.50 to $9.50, New York.

Canadian Scrap

Dealers' Buying Prices

MONTREAL

Per Gross Ton

Iron axles	$11.00
Steel axles	10.00
Car wheels	8.00
Stove plate	8.00
Wrought pipe	2.00
Turnings	2.00
Heavy melting steel	6.00

TORONTO

Steel axles	7.00
Iron axles	7.00
Heavy melting steel	7.00
Turnings	2.00
No. 1 mach. cast (net)	9.00
Malleable (net)	7.00

Philadelphia—Quotations on steel and iron scrap have been marked down sharply on recent sales and tonnages of distress scrap have been sold even lower than these prices. A substantial tonnage of No. 1 heavy melting steel has been sold at $12.50, delivered, and some heavy breakable cast has moved at $11 and $11.50, delivered. Phoenix Iron Co. has made a dual price on machine shop turnings, $7.50, delivered at Phoenixville, Pa., on local scrap at $1.76 freight or less, and $8.50 on material from distant points.

Buffalo—Bethlehem Steel Co. is reported to have purchased a tonnage of heavy melting steel for delivery at Lackawanna. A report which lacks official verification is that $12.50 a ton was paid for No. 1 and $11 for No. 2. This report and other developments have resulted in sharp downward revisions of quotations.

Pittsburgh—Slightly more activity is shown in the steel and iron scrap market, following prolonged dullness, with prices easier on recent sales. Heavy melting steel is off 25 cents on a sale at $14.75. Compressed sheets and scrap rails are down 50 cents on sales at $14.50. Buying of most grades is spotty and limited to small lots with prices nominal in many instances.

Cleveland—Continued lack of consumer demand is reflected in further decline in iron and steel scrap. Shipments have been cut 50 per cent this week by the one steelworks consumer which has been receiving material. A second large consumer remains out of the market with prospects slight that it will enter soon. Consumption by foundries is low. Quotations on practically all grades have moved to still lower levels this week, some as much as $1 a ton. No. 1 heavy melting steel has dropped to $11 to $11.25, the lowest this grade has been quoted in years.

Detroit—Decided weakness has developed recently in the steel and iron scrap market and quotations have been marked down 25 to 50 cents on most grades. Some interests believe prices will decline further, although less pessimism is being expressed.

Cincinnati—With small shipments of iron and steel scrap, prices show a softening tendency. Borings at $6 to $6.50 are weak. A decline of 25 cents in heavy melting steel to $10.25 to $10.75, is considered representative of the market.

St. Louis—Consumer interest in iron and steel scrap is still lacking, and with offerings in considerable volume, the trend of prices continues downward. Shipments to consumers are fairly well sustained. Contributions by railroads have been liberal for some weeks, and some large industries, which had heretofore originated little waste material, are now turning loose large quantities, despite declining prices.

Birmingham, Ala.—The market for steel and iron scrap is unchanged and dealers find little opportunity to trade. Prices are nominal and unchanged. Some heavy melting steel is moving but less than normally.

Toronto, Ont.—While there has been some improvement in sales to foundries and other consumers of iron scrap, steel grades are at a standstill. Mills are taking odd shipments of heavy melting steel, but no large tonnages are reported. Demand for iron scrap is confined to small tonnages but buyers are more numerous. Prices are unchanged.

Coke

Demand for Industrial and Domestic Heating Fuel Increased —Foundry, Furnace Sales Slow

COKE PRICES, PAGE 86

Pittsburgh—Beehive coke is moving better for heating purposes, cold weather stimulating demand for industrial and domestic fuel, with the prepared sizes making a better showing than the former grades. Blast furnace requirements are light, while shipments of furnace coke to gas producers is expanding slowly. Foundry operations continue as dull as a month ago. Prices are unchanged, with furnace coke usually $2.60, and standard foundry $3.50 to $3.85.

Beehive coke production in the Connellsville district during the week ended Oct. 11 was 18,750 tons against 17,520 tons the preceding week, and 17,300 tons the correspnding week of last year, according to the *Connellsville Courier*.

Cincinnati — Cold weather has stimulated demand for domestic coke. Foundry grades are moving slowly, specifications for this month about on a par with September.

Boston—Small shipments of coke on contracts are supplying foundries' requirements. The market for domestic grades also is quiet.

New York—The drop in temperature has brought out greater interest in furnace coke. However, prices are unchanged throughout the list.

Chicago—By-product foundry coke shipments are gaining about 10 per cent over September. Foundry specifications have been heavier despite the fact foundry operations continue at about 55 per cent, the same as a month ago. By-product coke is unchanged at $8, ovens, and $8.75, delivered in the Chicago switching district.

St. Louis—Coke shipments are slower than in September. Demand is spotty, some foundries increasing specifications.

Pacific Coast

Current Buying Light but Prospective Business Promises Much Tonnage for Final Months —Small Lots Rule —Pipe Buying as Declined to Low Level, Oil Country Needs Light

Seattle—Pending tonnages of iron and steel are in excess of normal in the Pacific Northwest. Awards on several important projects have been expected for some time but are still undecided. Business placed this week was of unimportant size but some new work has developed that is giving promise of improved turnover during the last two months of 1930.

One of the year's important jobs, the Ford plant at Seattle, will be up for figures early next month, it is reported. While the plans have not been released to local steel fabricators, it is understood that the steel involved is between 2000-4000 tons. Bids are in for construction of two large steel pipe lines for Seattle's water system, calling for about 8600 tons of plates. Lockbar and riveted steel pipe proposals are under consideration. Low bid for the former type was $1,206,116 and for the latter $1,313,527. The award is expected to be closed this week but there may be a delay due to controversy over paint.

Coast Pig Iron Prices

Utah basic	$22.00 to 24.00
Utah foundry	22.00 to 24.00
*German	24.25
*Indian	22.00 to 24.00

*C.i.f. duty paid.

Bars, Plates and Shapes

No reinforcing awards of 100 tons or more were announced this week although several large tonnages are pending. Local steel mills reports less demand for their products. Merchant bars are slow. Mill prices are unchanged, concrete bars at 2.30c and merchant at 2.25c.

Subcontracts for the two large Seattle pipe lines are awaited with interest by steel mills and fabricators. Tacoma is calling for bids Oct. 20 for a 30-inch steel pipe line 11,500 feet long requiring about 600 tons. Seattle engineers are working on a pipeline project in an irrigation district near Lake Chelan and on a proposed hydroelectric plant on Portland canal. The former job will involve five miles of 6 to 22-inch steel pipe while the latter will call for a penstock and powerhouse, details of which are not yet available.

The only award exceeding 100 tons of structurals this week was taken by the Wallace Bridge & Structural Steel Co., Seattle, which will furnish 200 tons of shapes for the Fox theater, Spokane. Bids are in and under consideraation for the dam gates and power house at Rock Island, Wash., for the Puget Sound Power & Light Co., a total of 1750 tons. Aside from the Seattle Ford plant no other important structural projects have developed this week.

Finished Materials

Wholesale houses report business slow and considerably below the corresponding month last year. Demand is spotted but it is less than expected. Notwithstanding conditions, prices remain firm and there is less complaint than usual about cutting. Recent imports of steel products include a small tonnage of rails from Antwerp and 1375 bundles of steel wire and rope from ports in Great Britain.

Pipe Tonnages are Pending

American Cast Iron Pipe Co., through R. C. Polk, Seattle agent, has a contract to furnish 275 tons of 8 and 12-inch Class B cast iron pipe for the Sixth avenue northwest improvement, Seattle. Award of 100 tons involved in the Magnolia boulevard project is pending. Stand pipe and pipe contracts for an improvement at Spokane are still pending. No important tonnages have developed . Municipalities as a rule are well supplied for the year and further improvements await next year's budgets. Local pipe branches are well stocked with standard sizes for quick deliveries.

Small Tonnages Are Rule

San Francisco—(*By Air Mail*)—Buyers now are purchasing only material that is actually needed. On the whole, both awards and new inquiries were of light proportions. Featuring the awards of the week were 3400 tons of structural shapes for the new Mills building in San Francisco, placed with McClintic-Marshall Co. No change is noted in prices.

Concrete bar awards aggregated 945 tons. Unnamed interests took 200 tons for a newspaper building, 250 for the John Marshall school and 300 tons for a warehouse for the Brunswig Drug Co., all in Los Angeles. Among the new inquiries were 600 tons for the Paramount theater, Oakland, and 350 tons for a building in Berkeley for the University of California. Pending business exceeds 6000 tons. Out-of-stock quotations in both the Los Angeles and San Francisco districts continues firm at 2.50c., base, on carload lots. Movement of merchant bar steel continues confined to small lots. On this class of material 2.35c, c.i.f. appears firm. Plate prices range between 2.05 and 2.15c, c.i.f.

Structural shape awards were the largest in nearly two months and totaled 4245 tons. The Minneapolis Steel & Machinery Co. took 100 tons for the John Marshall school in Los Angeles. McClintic-Marshall Co. took 325 tons for a newspaper building on North Wilcox street, Los Angeles, and 100 tons for an apartment on Haight street, San Francisco. A bridge on the Ashfork-Kingman highway in Arizona, 205 tons, went to the Virginia Bridge & Iron Co.

Other Finished Material

For the first time in ten weeks, cast iron pipe awards totaled less than 100 tons. Los Angeles will open bids Oct. 20 for 2516 tons and Eureka, Calif., will open bids Oct. 21 for 100 tons. No award has yet been made on the 331 tons for Fullerton, Calif. Little of importance has transpired of late in the markets for standard steel pipe, oil country goods and line pipe. Stocks of the former commodity in distributors' warehouses are well rounded out. Line pipe inquiries are confined to small lots of a few thousand feet.

Hanna Takes Copper Option

An option on property held by the United States Copper Mining Co., at Clifton, Ariz., has been acquired by the M. A. Hanna Co., iron and coal mine operators. The property is believed to contain a commercial tonnage of low-grade copper ore, comparable with other porphyry copper of the Southwest. The Hanna company has had geologists and mining experts examine the field, but has not decided what course to pursue in regard to it. Property is adjacent to the Phelps Dodge Corp., which is working a higher grade ore body, averaging approximately 2 per cent, and concentrating the ore by means of the flotation process.

Steel, Wrought and Cast Iron Pipe, and Tubing

Welded Iron, Steel Pipe

Base Price $200 ton

Base Discounts on steel pipe, Pittsburgh and Lorain, O., to jobbers in carloads. Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago del., 2 points less. Wrought iron pipe, Pittsburgh base.

BUTT WELD

Steel In.	Blk.	Gal.	Iron In.	Blk.	Gal.
⅛	58	44½	½	23	5
¼	62	50½	¾	28	11
1—3	64	52½	1 and 1¼	31	15
			1½ and 2	35	18

LAP WELD

2	57	45½	2	23	9
2½—6	61	49½	2½—3½	28	13
7—8	58	45½	4—6	30	17
9—10	56	43½	7 and 8	29	16
11—12	55	42½	9—12	26	11

BUTT WELD

Extra strong, plain ends

⅛	55	44½	¼ & ⅜	+13	+48
¼	60	49½	½	23	7
1—1½	62	51½	¾	28	12
2—3	63	52½	1—2	34	18

LAP WELD

Extra strong, plain ends

2	55	44½	2	29	13
2½—4	59	48½	2½—4	34	20
4½—6	58	47½	4½—6	33	19
7—8	54	41½	7 and 8	31	17
9—10	47	34½	9—12	21	8
11—12	46	33½			

To large jobbers these discounts on steel pipe increased on black by 1 point and two discounts of 5 per cent; on galvanized by 1½ points with two 5 per cents. On iron pipe large jobbers obtain additional discount of 1 point with 5 and 2½ per cent on black and galvanized.

BOILER TUBES

Carload Discounts, Lap Welded Steel		Charcoal Iron	
2—2¼	38	1¾	8
2½—2¾	46	2—2¼	13
3	52	2½—2¾	16
3¼—3¾	54	3	17
4	57	3¼—3½	18
4½—6	46	4	20
1½	1	4½	21

On lots of a carload or more, above base discounts subject to preferential of two 5 per cent discounts on steel and 10 per cent on charcoal iron. Smaller quantities subject to following modifications from base discounts.

Lap Welded Steel—Under 10,000 pounds, 6 points under base and one 5 per cent; on 10,000 pounds to carload. 4 points under base and two 5 per cents. Charcoal iron—under 10,000 pounds, 2 points under base; on 10,000 pounds to carload, base and one 5 per cent.

STANDARD COMMERCIAL SEAMLESS BOILER TUBES

COLD DRAWN

1	61	3	46
1¼—1½	53	3¼—3½	48
1¾	37	4	51
2—2¼	32	4½, 5, 6	40
2½—2¾	40		

HOT ROLLED

2—2¼	38	3¼—3½	54
2½—2¾	46	4	57
3	52	4½, 5, 6	46

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed. No extra for lengths up to and including 24 feet. Sizes smaller than 1 inch and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Tubing

Cold drawn; f.o.b. mill

Random lengths over 5 ft.....55%
Selected lengths, 1 to 18 ft.....53%

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

Six-inch and over, Bir.	$37.00 to 38.00
Four-inch, Birmingham	41.00 to 42.00
Four-inch, Chicago	49.20 to 50.20
Six to 24-inch, Chicago	45.20 to 46.20
Six-inch and over, N. Y.	38.50 to 40.50
Four-inch, New York	41.50 to 42.50
Stand. fittings, Bir. base	$100.00

Six to 24-inch, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe $4 higher than Class B.

Warehouse Quotations at Leading Centers, in Cents Per Pound

STEEL BARS

Baltimore	3.00c
Boston	3.265c
Buffalo	3.15c
Chattanooga	3.10c
Chicago	2.90c
Cincinnati	3.15c
Cleveland	2.85c
Detroit	3.00c
Houston	3.00c
Los. Ang.	3.40c
New York††	3.10c
Philadelphia	2.60c
Pittsburgh	2.75c
Portland	3.15c
San Frans.	3.40c
Seattle	3.15c
St. Louis	3.15c
St. Paul	3.00c
Tulsa	3.65c

IRON BARS

Baltimore	3.25c
Boston	3.265c
Buffalo	3.15c
Chattanooga	3.10c
Chicago	3.00c
Cincinnati	3.15c
Detroit	3.00c
New York††	3.10c
Philadelphia	2.60c
St. Louis	3.15c
Tulsa	3.65c

REINFOR. BARS

Baltimore	2.50c-3.31c
Boston	3.265c
Buffalo	2.95c
Chattanooga	3.10c
Cincinnati	3.15c
Cleveland	2.25c-2.44c
Detroit	3.00c
Houston	3.00c
Los Ang. cl	2.40c
Los Ang. lcl	2.70c
New York	2.65c-3.10c
Phila.	2.40c-3.00c
Pittsburgh	2.75c
San Fran. cl	2.30c
San Fran. lcl.	2.60c
Seattle	3.15c
St. Louis	3.15c
Tulsa	3.65c
Young.	2.30c-2.60c

SHAPES

Baltimore	3.00c
Boston	3.365c
Buffalo	3.25c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland	2.95c
Detroit	3.10c
Houston	3.25c
Los. Ang.	3.40c
New York	3.10c
Philadelphia	2.50c
Pittsburgh	2.85c
Portland	3.15c
San Fran.	3.40c
Seattle	3.15c
St. Louis	3.25c
St. Paul	3.10c
Tulsa	3.75c

PLATES

Baltimore	3.00c
Boston	3.365c
Buffalo	3.25c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland, ¼-in. and thicker	2.95c
Clev., 3/16-in	3.20c
Detroit	3.10c
Det., 3/16-in.	3.10c
Houston	3.00c
Los Angeles	3.40c
New York	3.30c
Philadelphia	2.50c
Pittsburgh	2.85c
Portland	3.15c
San Fran.	3.40c
Seattle	3.15c
St. Louis	3.25c
St. Paul	3.10c
Tulsa	3.75c

NO. 10 BLUE

Baltimore	3.50c
Bost. 3/16-in.	3.915c
Buffalo	3.50c
Chattanooga	3.60c
Chicago	3.35c
Cincinnati	3.45c
Cleveland	3.10c
Detroit	3.35c
Houston	3.90c
Los Ang.	3.95c
New York	3.40c
Portland	4.00c
Phila.*†	3.05c
Pitts.**	2.75c-2.85c
San Fran.	3.80c
Seattle	4.00c
St. Louis	3.45c
St. Paul	3.40c
Tulsa	3.95c

NO. 24 BLACK

Balt. *†	3.75c
Boston	4.70c
Buffalo	4.20c
Chicago	3.80c
Cincinnati	4.05c
Clev. ***	3.75c
Detroit	3.75c
Los Ang.	4.70c
New York	3.55c to 3.65c
Phila.*†	3.60c
Pitts.**	3.40c-3.50c
Portland	5.00c
San Fran.	4.35c
Seattle	5.00c
St. Louis	4.05c
St. Paul	3.545c
Tulsa	4.45c

NO. 24 GAL. SHEETS

Balt.*†	4.25c
Boston	5.45c
Buffalo	4.40c to 4.60c
Chicago (lc. del.)	4.35c
Chicago (outside shipment)	4.35c to 4.60c
Cincinnati	4.90c
Cleveland***	4.35c
Detroit	4.25c
Houston	5.40c
Los Ang.	5.10c
New York	4.25c
Phila.*†	4.15c
Pitts.**	4.00c-4.10c
Portland	5.50c
San Fran.	5.00c
Seattle	5.50c
St. Louis	4.60c
St. Paul	4.23c
Tulsa	5.35c

BANDS

Baltimore	3.50c
Boston	4.015c-5.00c
Buffalo	3.50c
Chattanooga	3.30c
Chicago	3.10c
Cincinnati	3.35c
Cleveland	3.10c
Det. 3/16-in. & lighter	3.30c
Houston	3.65c
Los Ang.	4.30c
New York	3.40c
Philadelphia	2.90c
Pittsburgh	3.10c
Portland	3.50c
San Fran.	3.75c
Seattle	4.15c
St. Paul	3.75c
Tulsa	3.85c

HOOPS

Baltimore	3.50c
Boston	5.50c-6.00c
Buffalo	3.90c
Chicago	3.65c
Cincinnati	3.90c
Cleveland	3.65c
Det. No. 14 & lighter	3.80c
New York	3.75c
Philadelphia	3.15c
Pittsburgh	4.10c
Seattle	5.15c
St. Paul	3.70c

COLD FIN. STEEL

Rounds & Hexagons

Baltimore (c)	3.30c
Boston	3.50c
Buffalo	3.15c
Chattanooga*	3.85c
Chicago	3.35c
Cincinnati	3.80c
Cleveland	3.40c
Detroit	3.65c
Los Ang. (a)	4.50c
New York	3.50c
Philadelphia*	3.40c
Pittsburgh	3.35c
Portland (a)	4.50c
San. Fran.(a)	4.25c
Seattle (a)	4.75c
St. Paul (a)	3.85c
St. Louis	3.60c
Tulsa	4.75c

Flats and squares 50c extra, except Tulsa, where 5.14c is quoted.
(a) Rounds, hex. only.

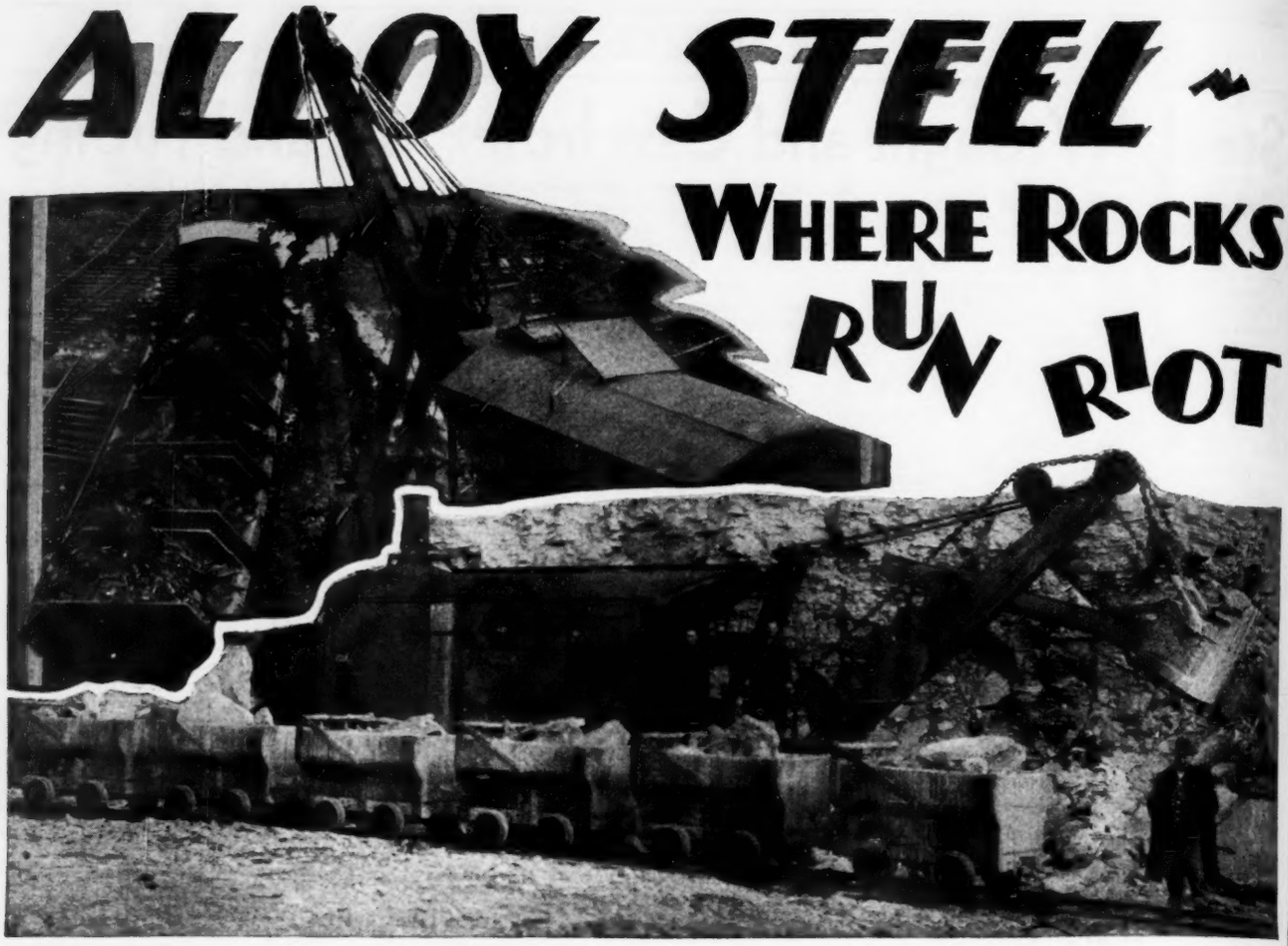
COLD ROLL. STRIP

Boston 0.100-in., 500 lb. lots	5.30c
Buffalo	5.65c
Chicago (soft) (b)	6.15c
Cincinnati	6.10c
Clev. (b)	5.95c
Detroit	5.40c
Phila. (c)	4.85c
New York	5.05c

(b) Net base, straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.

††Domestic bars.
*Plus quantity extras.
**Less than 25 sheets.
*†50 or more bundles.
***Less 0.15c where more than 10 bundles are ordered at once for delivery at one time.

ALLOY STEEL — WHERE ROCKS RUN RIOT



CONSIDER the punishment your equipment takes in the quarries! . . . steel bits making hole for the blasting charge . . . shovels loading tons of rock . . . quarry cars subjected to terrific usage, straining with every load . . . car trucks jarring, wheels scraping over uneven track . . . load upon load of rock dumped into the yawning jaws of the crusher. Here is a story of wear, strains, shocks and distortion.

Place your dependence where the great majority of progressive plant operators are placing theirs—on Alloy Steel equipment. Its superiority over ordinary steel in strength and resistance to abrasion, impact, distortion and fatigue is saving countless thousands of dollars yearly throughout the entire industrial field.

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Electromet
Ferro-Alloys & Metals

Mill Products

Base price cents per pound f.o.b. mill, except otherwise specified. Copper and brass product prices based on 10.00c, del., Conn. for copper

Sheets	
Yellow brass (high)	17.00
Copper, hot rolled	19.75
Lead, full sheets (cut ½c more)	9.00
Zinc sheet (100-lb. base)	9.50
Tubes and Pipes	
Seamless yellow brass (high)	21.87½
Seamless copper	22.00
Rods	
Yellow brass (high, full turnings)	15.25
Naval brass	17.37½
Anodes	
Copper, untrimmed	17.25
Wire	
Yellow brass (high)	17.50

Old Metals

Dealers' buying prices, cents lb.

Heavy Red Brass	
New York	7.25 to 7.50
Chicago	6.50 to 6.75
Cleveland	7.00 to 7.50
St. Louis	7.00 to 7.25
Heavy Yellow Brass	
New York	4.75 to 5.00
Heavy Copper and Wire	
New York	8.00 to 8.25
Boston	7.75 to 8.00
Chicago	7.50 to 8.00
Cleveland	7.25 to 7.50
St. Louis	6.75 to 7.00
Red Brass Borings	
New York	6.75 to 7.00
Yellow Brass Tubing	
Cleveland	4.00 to 4.50
Light Copper	
New York	7.00 to 7.25
Chicago	6.50 to 6.75
Cleveland	6.50 to 6.75
St. Louis	6.75 to 7.00
Light Brass	
Boston	3.50 to 3.75
Chicago	4.25 to 4.50
Cleveland	3.25 to 3.50
St. Louis	4.00 to 4.25
Zinc	
New York	2.00
Cleveland	1.50 to 2.00
St. Louis	2.00
Aluminum	
Clippings, soft, Cleveland	12.00 to 13.00
Clippings, hard, Cleveland	9.00 to 9.50
Borings, Cleveland	5.00 to 5.50
Cast, Cleveland	7.50 to 8.00
Cast, Boston	6.00 to 6.25
Cast, St. Louis	7.00

Secondary Metals

Remelt aluminum No. 12	13.50
Brass ingot, 85-5-5-5	10.00

Quicksilver Steady at $112

New York—Quicksilver is steady, with $112 a flask the most general price for small spot lots, while quotations also are heard a little above and below this figure.

Metals

Demand Is Light as Users Show Uncertainty Regarding Prices —Copper Steady at Low Level

New York—With users uncertain as to whether prices of most metals have touched bottom, buying this week has been light. A few months ago, the mere fact that most prices were the lowest in more than a quarter of a century would have been sufficient to stimulate purchases, but buyers and sellers have been fooled so often on the appearance of bottom that they have become skeptical.

Some signs indicate that the break has been overdone, especially in London lead, zinc and tin. The melting away of market values was at least checked if not stopped with recoveries on the stock exchange and in the London metal market. These recoveries were especially significant to the American markets in lead and tin.

Copper—Prices are steady at 10.00c, Connecticut, and may hold a while at this figure, the lowest since 1896 and seldom touched prior to that. Demand and supply are not yet balanced, and it is said in the market that it may be difficult to accomplish this end, except as lower prices force it. However, it is understood that curtailment of output is considered by the producers on a greater scale.

Zinc—Depression in the price of prime western to the lowest since about 1902 and a price seldom approached in the history of the industry, has all the earmarks of a deliberate effort to force the production of mines and smelters to a lower point. The September statistics show that although curtailment has made progress this year it has been much too slow to balance the market. Some metal has been sold at 3.95c, East St. Louis, but in the past few days more business has been done at 4.00c.

Tin—After several days of light business, with spot straits dropping to 24.62½c, the price recovered to about 27.00c. Dealers have bought for shipment into next year, while consumers have bought little else than nearby. Stocks of tin in this country and in England have been cut nearly 2000 tons in a month but in England they continue burdensome.

Lead—Firmness has brought domestic buyers into the market. Some buying for November as well as prompt shipment has been done though the latter continues to dominate the market. September statistics were relatively strong in that they showed a negligible increase in stocks.

Aluminum—Prices here are steady, although business is light and the market in Europe has been cut two cents to 18.50c a pound.—*Daily Metal Trade*

By-Products Scarce and Prices Tend Upward

New York—Demand for light oil distillates is steady and heavy enough to reduce some reserve stocks, especially motor benzol, which is in short supply. Toluol and xylol also are active, with evidence of higher prices before Jan. 1. Output is off as coking operations continue curtailed. Prices are firm, but unchanged. According to the bureau of mines, benzol production the first eight months of the year was 7 per cent below 1929 at 80,346,000 gallons.

Coke By-Products

Per Gallon, Producers' Plants, Tank Lots

	Spot
Pure benzol	$0.21
90 per cent benzol	0.21
Toluol	0.30
Solvent naphtha	0.25
Commercial xylol	0.25
Per Pound at Producers' Plants in 250-Pound Drums	
Phenol	0.16 to 0.17
Per Pound at Producers' Plants	
Naphthalene flakes	3.75 to 4.75
Naphthalene balls	4.75 to 5.75
Per 100 Pounds Delivered	
Sulphate of ammonia	$1.85

Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Straits Tin New York Spot	Straits Tin New York Futures	Lead N. Y.	Lead East St. L.	Zinc St. L.	Aluminum 98-99%	Spot Antimony	Ingot Nickel
Oct. 15	10.00	10.12½	9.87½	25.50	26.00	5.10	4.95	3.95	22.90	7.25	35.00
Oct. 16	10.00	10.12½	9.87½	26.00	26.30	5.10	4.95	3.95	22.90	7.37½	35.00
Oct. 17	10.00	10.12½	9.87½	26.55	26.87½	5.10	4.95	3.97½	22.90	7.30	35.00
Oct. 18	10.00	10.12½	9.87½	26.50	26.85	5.10	4.95	4.00	22.90	7.30	35.00
Oct. 20	10.00	10.12½	9.87½	26.85	27.15	5.10	4.95	4.00	22.90	7.30	35.00
Oct. 21	10.00	10.12½	9.87½	27.25	27.50	5.10	4.95	4.00	22.90	7.30	35.00

Europe

British Steel Prices Unchanged and Competition Undersells—More Works Being Closed

Birmingham, Eng.—The quarterly meeting of the iron trade at Birmingham was unproductive of business. Conditions in the consuming industries do not warrant forward buying and the quarterly gathering has rarely been held under such depressing conditions. A few representatives came as usual from other parts of the Kingdom.

In the case of South Wales they were fewer, but this is not to be wondered at in view of the stagnation in that steelmaking center. A crisis has been sprung upon the Welsh steel industry by announcement that at the end of this week the Dowlais steelworks must be closed, throwing out of work 2500 men.

Appeals have been made to the works to carry on, but the chairman of the British Guest Keen Baldwins Iron & Steel Co. Ltd. informed the mayor of Herthyr Tydvil in a letter: " The plain fact is that the product of Dowlais works cannot now be sold to pay for the cost of operating the works."

Another Works Closed

In addition to the closing of Dowlais, 4000 men are idle following closing of the Ebbw Vale iron and steel works, but a strong effort is being made to persuade the company to make a restart.

The meeting of the steel association next week is being awaited with great interest. Production costs have been lowered considerably since the association fixed the present basis ten months ago. Foreign competition has been intensified to a degree unequalized in the present generation.

Steel consumers who usually cover their requirements at the quarterly meeting held off the market in the hope of saving money by waiting. Demand for structural steel was slow, partly on account of the pending steel meeting and also because of few contracts among engineers.

Imports of foreign material into the Tees last week totaled 1220 tons of steel bars and billets. More iron and steel was brought into the Tees last month than in any of the five preceding months but the tonnage was considerably less than for the corresponding months last year. Only 1263 tons of pig iron was imported in September, against 2354 tons in September last year, and the total tonnage for the last eleven months is less than half that for the corresponding period in 1929.

The east coast hematite trade is improving steadily. Production is small and now unable to satisfy market needs, so that stocks are being drawn upon. The average net selling price of No. 3 Middlesbrough pig iron for third quarter has been certified at 62s 2.65d per ton as against 65s 9.99d for the previous three months, and under the sliding scale arrangements northeast coast blast furnacemen's wages are automatically reduced by 3.5 per cent for last quarter.

In the finished iron trade of South Staffordshire marked bar producers hitherto have been fortunate in being able to run mills regularly despite the prevailing depression in other sections of the market. They are now beginning to feel the scarcity of new business and although operations have not yet been slowed down the position gives cause for anxiety.

Midland pig iron producers have accumulated heavy stocks of material but they are maintaining a firm attitude in regard to prices. There is still a feeling among consumers that prices are likely to fall although it is difficult to understand how the furnacemen could afford to sell below the present basis when costs of production are taken into account.

For the most part buying is on the hand-to-mouth basis and sales consist chiefly of No. 3 foundry material from Northamptonshire and Derbyshire furnaces. In Scotland production at several furnaces is about to be discontinued and in a short time only ten will be operating, compared with 80 before the war. Not only have English pig iron producers made inroads into Scottish markets but there have been heavy imports of Indian basic iron.

Few Railway Orders

Orders for railway material are being received in small quantities. The North British Locomotive Co. Ltd., Glasgow, has received a contract for 10 Garrat locomotives for the Kenya and Uganda railways. Beyer Peacock & Co., Manchester, are to supply three Beyer Garratt locos for the Tanganyika railway.

In Britain the railroads are paying more attention to electrification of certain systems and orders amounting to nearly £500,000 worth of electrical equipment have recently been placed by the Southern railway with the Metropolitan Vickers Electrical Co. and the British Thomson Houston Co. The passenger cars will be built in the railroad company's own workshops.

Continental billets have been selling cheaply and in the last few days merchants declare they have bought at £4 5s ($20.65), delivered, Birmingham. This, it is admitted, was for a good tonnage but business could be placed easily for small tonnages at £4 7s 6d ($21.25).

British Steelmakers Fail To Reduce Prices

London — (By Cable) — Prices are unchanged, following a meeting of the British Steel association. It was found that possible concessions would be too small to meet foreign prices. Continental billets and bars were imported by British buyers last week at £4 3s 4d ($20.25), delivered at dock in the Tees.

The position of British steelworks is not improving. Demand for Middlesbrough pig iron is just absorbing the output. Sales of hematite are fairly steady. Some continental iron is being purchased by consumers in the Midlands. The market in West Scotland is reported slightly more active. Tin plate is weak, and orders for galvanized sheets are moderate.

British iron and steel imports in September totaled 223,829 tons, compared with 195,404 tons in August, and 229,082 tons in September last year. Exports amounted to 200,280 tons, against 218,828 tons in August, and 299,460 tons in September last year.

A report from Berlin states German iron and steel works are refusing to book orders at present unsatisfactory prices. Belgian markets appear to be increasingly dull. The situation in France is unchanged. The future of the European steel entente still is uncertain.

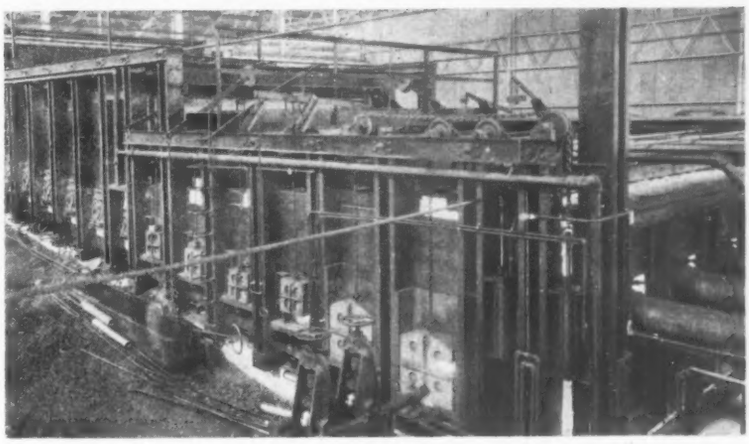
French Ore Stocks Gain

Paris—Production of iron ore at French mines in July was increased

DETRICK

Suspended Arches—Walls for Heating Furnaces

The reproduced photograph at right shows a typical Detrick installation—a ninety-four foot billet heating furnace in the Gambrinus plant of the Timken Company. The *suspended* arch principle employed by Detrick means flexibility of design, allowing for expansion and contraction of the refractory material without damage, assurance that the roof will not collapse, and makes it easy to replace burned out patches without disturbing other sections of the roof.

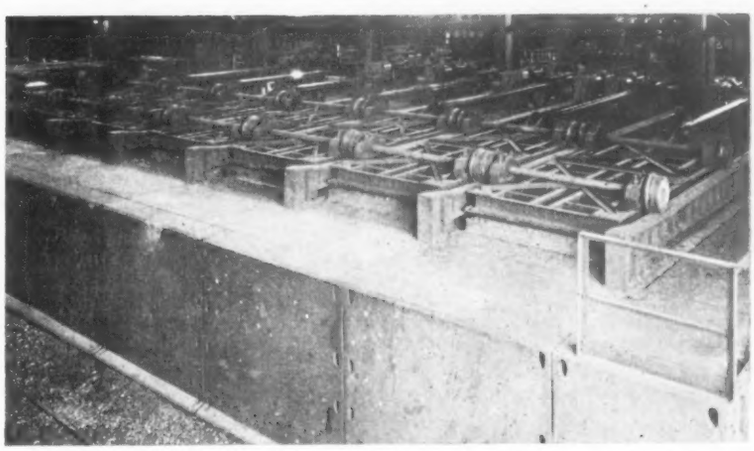


94-Foot Billet Heating Furnace with Detrick Roof

And Soaking Pit Covers

Soaking Pit Covers embodying the Detrick Suspended principle consist of center-grooved tile suspended by cast iron bars from structural steel beams spanning the pit and framed into the outside structural members of the moving frame. The use of suspended tile eliminates the possibility of cover failure due to constant jars and shocks; provides a better seal on the pit walls and makes it possible to repair the cover in small sections.

Wherever used—arches, walls, roofs—the Detrick principle allows for expansion and contraction of the refractory material without danger of damage.



Detrick Covers on Chapman-Stein One-Way Fired Soaking Pits with Tile Recuperator.

There are Detrick Engineers stationed near you. They are experts in furnace design and their advice and assistance is yours for the asking. Without cost or obligation they will gladly point out the advantages of Detrick construction in your own plant.

M. H. Detrick Co.

140 S. Dearborn St., Chicago, Ill.

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New York: 50 Church St. **Philadelphia: 1421 Chestnut St.** **Pittsburgh: Empire Bldg.** **Detroit: Murphy Bldg.** **San Francisco: Russ Bldg.**

over June, stocks at mines in July being the highest for the year. Comparisons are as follows:

Mon. ave.	Production	Stocks at end of month
1913	1,826,500	.....
1927	3,723,200	.....
1928	4,109,780	.....
1929	4,252,470	.....
1930		
Jan.	4,567,511	2,680,461
Feb.	4,132,962	2,779,536
March	4,336,932	2,851,347
April	4,008,353	2,836,072
May	4,231,886	2,898,086
June	3,897,000	2,875,098
July	4,254,281	3,107,223

Belgian Decline Continues

Brussels—There was a further drop in pig iron and steel production in Belgium in August. Comparisons follow:

Mon. ave.	Act. Furn.	Pig iron	Steel ingots and castings	Finished steel
1913	....	207,055	205,550	154,920
1927	....	312,620	309,040	255,185
1928	....	325,445	327,870	281,125
1929	58	341,330	344,370	296,370
1930				
Jan.	58	343,380	340,200	296,220
Feb.	57	315,320	321,480	271,430
Mar.	57	341,820	359,150	258,770
April	56	313,250	312,550	252,150
May	54	299,510	294,160	240,900
June	51	265,290	252,680	204,590
July	49	259,750	263,980	209,060
Aug.	47	246,740	244,870	206,020

U. S. Brass Turning Co., New York, has increased capital from $5000 to $15,000.

France Makes More Coke

Paris—Production of metallurgical coke at French coal mines in July exceeded that of June. Imports were less and exports greater than in June. Comparative figures follow, in metric tons:

Mon. ave.	Production	Imports	Exports
1913	335,620	255,835	17,085
1927	339,015	395,580	33,430
1928	366,660	447,330	34,810
1929	397,435	453,720	39,070
1930			
Jan.	414,797	442,754	37,473
Feb.	392,950	403,887	15,905
March	443,909	385,742	11,779
April	419,348	450,437	13,371
May	426,327	386,422	21,605
June	416,992	386,359	24,333
July	427,121	352,388	40,460

French Production Lower

Paris—In August the output of pig iron in France fell below that of July. The August pig iron output was divided as follows: Basic bessemer, 654,000 tons; phosphorus foundry, 102,000 tons; semiphosphorus, 7000 tons; hematite foundry, 30,000 tons; hematite pig iron for steel-making, 32,000 tons; ferroalloys, 20,000 tons.

The output of steel ingots and castings in France in August also was below that of July. It included 755,000 tons of ingots and 20,000 tons of steel castings; this output was divided as follows: Basic bessemer, 544,000 tons; open-hearth, 200 tons; electric, 12,000 tons, acid bessemer, 9000 tons; crucible, 1000 tons. Comparisons follow, in metric tons:

Mon. ave.	Act. Fur. on last day	Pig iron	Steel ingots and castings
1913	131	433,940	390,580
1927	142	774,785	689,610
1928	153	841,415	782,995
1929	156	870,000	805,500
1930			
Jan.	156	875,000	800,000
Feb.	154	815,000	772,000
March	152	898,000	848,000
April	153	854,000	787,000
May	154	899,000	853,000
June	.....	841,000	753,000
July	147	861,000	790,000
August	143	845,000	775,000

Luxemburg Output Up

Brussels—Production of pig iron in Luxemburg in August exceeded that of July. Steel ingot and castings output in August also was greater than in July. Comparative figures follow, in metric tons:

Mon. ave.	Furnaces on last day	Pig iron	Steel ingots and castings
1913	....	212,320	111,355
1927	39	227,710	200,595
1928	38	230,840	214,315
1929	37	242,175	225,605
1930			
Jan.	37	249,875	216,315
Feb.	36	231,326	214,857
March	35	248,983	225,285
April	32	221,209	198,250
May	....	212,168	189,027
June	27	178,203	150,267
July	27	185,043	164,889
August	....	197,242	177,270

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, October 20	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable		£ s d		£ s d		£ s d		£ s d
PIG IRON								
Foundry No. 3, Silicon 2.50-3.00	$15.43	3 3 6*	$12.64	2 12 0	$12.64	2 12 0	$13.37	2 15 0
Basic-bessemer	15.92	3 5 6†	12.64	2 12 0	12.64	2 12 0	13.37	2 15 0
Hematite, Phosphorus 0.02-0.05	17.25	3 11 0	.....	.....	.....	.....	17.74	3 13 0
SEMIFINISHED STEEL								
Billets	$27.95	5 15 0	$17.01	3 10 0	$17.01	3 10 0	$17.50	3 12 0
Wire rods	41.31	8 10 0	29.16	6 0 0	29.16	6 10 0	29.16	6 0 0
FINISHED STEEL								
Standard rails	$40.10	8 5 0	$31.60	6 10 0	$31.60	6 10 0	$32.08	6 12 0
Merchant bars	1.68c	7 15 0	.90c	4 2 0	.90c	4 2 0	.92c	4 4 0
Structural shapes	1.68c	7 15 0	.82c	3 14 6	.82c	3 14 6	.87c	3 19 0
Plates, ship, bridge and tank	1.79c	8 5 0	1.06c	4 16 0	1.06c	4 16 0	1.10c	5 0 0
Sheets, black, 24 gage	2.17c	10 0 0	1.86c	8 8 9	1.86c	8 8 9	2.31c	10 10 0
Sheets, galvanized, 24 gage, corrugated	2.41c	11 2 6	2.38c	10 16 3	2.38c	10 16 3	3.13c	14 10 0
Bands and strips	2.17c	10 0 0	1.03c	4 14 0	1.03c	4 14 0	1.10c	5 0 0
Plain wire, base	2.06c	9 10 0	1.46c	6 12 6	1.46c	6 12 6	1.30c	5 18 0
Galvanized wire, base	3.04c	14 0 0	1.60c	7 5 0	1.60c	7 5 0	1.62c	7 7 6
Wire nails, base	2.39c	11 0 0	1.32c	6 0 0	1.32c	6 0 0	1.32c	6 0 0
Tin plate, base box 108 pounds	$ 4.13	0 17 0	.....	.....	.....	.....	$ 8.75	1 15 0

Domestic Prices at Works or Furnace—Last Reported			Francs		Francs		Marks	
Foundry No. 3 Pig Iron, Silicon 2.50-3.00	$15.43	3 3 6	$19.26	490(2)	$16.18	580	$19.78	83
Basic pig iron	15.80	3 5 0	20.63	525(1)	12.83	460	21.09	88.50
Furnace coke	3.16	0 13 0	6.60	168	5.30	190	5.12	21.50
Billets	27.95	5 15 0	21.62	550	18.13	650	28.00	117.50
Standard rails	1.79c	8 5 0	1.46c	810	1.61c	1,240	1.47c	136
Merchant bars	1.68c	7 15 0	1.12c	620	.98c	750	1.48c	137
Shapes	1.84c	8 10 0	1.12c	620	1.04c	800	1.45c	134
Plates, ship, bridge and tank	1.90c	9 0 0‡	1.46c	810	1.04c	800	1.65c	153
Sheets, black, 24 gage	2.28c	10 10 0	2.63c	1,400	2.47c	1,900	1.36c	126
Sheets, galvanized 24 gage, corrugated	2.52c	11 12 6	3.60c	2,000	2.60c	2,000	3.67c	340
Plain wire	2.06c	9 10 0	2.03c	1,125	2.15c	1,650	2.45c	227
Bands and Strips	2.17c	10 0 0	1.25c	695	1.37c	1,050	1.72c	159

*Middlesbrough; †Basic; ‡delivered; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 13s 0d ($3.16) f. o. b. Ferromanganese £19 6s 0d ($93.80) delivered Atlantic seaboard, duty-paid. German ferromanganese £12 5s 0d ($59.54) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel. French, Belgian, Luxemburg, and German are for basic-bessemer steel.

Machinery

PITTSBURGH is a bit optimistic this week on account of a marked revival in equipment inquiry, but at the same time Chicago has relapsed into a state of discouragement after several weeks of activity, as activity goes in these troublesome days. Elsewhere things remain as they were, or a trifle worse. Representatives have returned from the convention of the National Machine Tool Builders' association at Lenox, Mass., with a general feeling that conditions are not quite as bad as they had feared and that some degree of revival in the machine tool business lies just over a not far distant hill. Active programs are being developed to arouse early activity in the replacement market which holds possibilities set at $400,000,000 during the next five years.

New York—Inquiry for machine tool equipment has slumped to the low level of several months ago. Sales are also curtailed, being limited to one or two units at a time generally involving special tools. There are no large lists before the market and several inquiries which appeared promising for business several weeks ago are inactive. Railroads are taking little equipment, buying only for needed replacements. The sheet metal working industry is doing fairly well and a good part of recent inquiry has been from that source. One dealer reports the sale of four brakes last week. Most eastern builders and dealers do not expect a pronounced improvement until the first of the year at least.

Ball bearing interests still are operating on curtailed production schedules. Grinding machine demand is slack, due largely to the drop in automotive demand. Export business continues moderately good. Central Vermont car and locomotive shops are being operated at full-time rate for the first time this year, it is reported from St. Albans, Vt. The bulk of the business is for replacement, new plant installations being few. Crane buying and inquiry remains light. Two cranes for a pipe fabricating shop at Hoboken, N. J., have been placed.

Worcester, Mass.—Despite the optimistic pronouncements of machine tool builders attending the convention of machine tool men in Lenox, Mass., this past week, there is little in the way of current business to sustain the hope that business is improving. There is practically no activity in lathes and drills and the grinder market is running along on few orders. Textiles are weak. Small tool demands are small. There is little likelihood that much of anything will be done during fourth quarter.

Pittsburgh—Machine tool inquiry is more active, supplemented by a number of requests for prices for the purpose of estimating 1931 budgets. These inquiries in most cases involve only a few tools at a time and the aggregate volume is only fair. No large lots are noted from steel companies but the Westinghouse Electric & Mfg. Co. is expected to inquire for a number of tools shortly. Awards still are light and involve only scattered purchases. Activity by railroads both in awards and purchases continues restricted. The crane market remains dull.

Cleveland—Aside from some scattering orders for individual machines, local machine tool builders report conditions unimproved over last week. Inquiries have let up, although some previously received have been followed up by prospects who apparently desire unusually complete data in the setting up of 1931 equipment budgets. Some builders of dies and tools, and of special machinery report reasonable activity, but on the whole such shops have not held gains in business reported during September. Employment in the equipment building plants is at a low ebb, and while few lay-offs are reported, short time schedules have been extended from plant to office workers, thereby amounting to salary cuts in the case of minor executives. It has been made plain, however, that this is a temporary expedient to conserve working capital over a critical period.

There was a large attendance of engineers and executives of Cleveland machine tool companies at the annual convention of the National Machine Tool Builders' association at Lenox, Mass., last week, some of them having been elected to important offices in the association during the meeting. Reports of a more favorable index in the business were gratifying to the Cleveland delegation, but these members agreed that the improvement could not to any degree be traced to business improvement in Cleveland. The decision of the association to engage in marketing research, aimed to stimulate the replacement business, met with the hearty support of the Cleveland delegation. The companies which they represent had already sensed the importance of this replacement market and are actively campaigning for it by the development and promotion of new and improved designs. Whatever the association does in this direction will tie in effectively with the individual activities already under way in the Cleveland district.

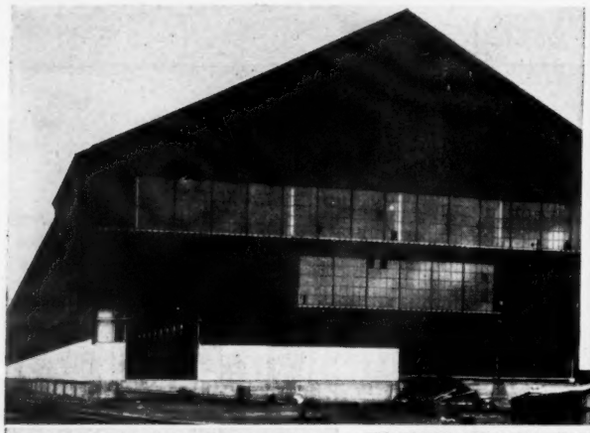
Chicago—Machine tool business in this district definitely is pointing downward after an encouraging spurt during September and in the early part of October. Inquiries are much lighter, much potential work still is far short of the active stage and scattered industrial inquiries constitute the business in prospect now. Tool and dies shops have little in view concerning substantial programs, while the western railroads are not as yet making known their budget needs. Only a few manufacturing concerns are known to have important schedules definitely in view for next year, but it is likely that several of the tractor plants will be in the market later, as the industry is expecting a fairly good season next year. Chicago board of education has just placed about $1000 worth of sheet metal shop tools, and has pending 18 lathes for Austin high school. It is probable the board also may buy other tools in the next few months for the Austin school. A Colorado steelworks has purchased some light shop equipment. Billings are light as the carry-over from September was small. Used tools are suffering in demand, in line with the new equipment situation.

Hoist Business Decreased During September

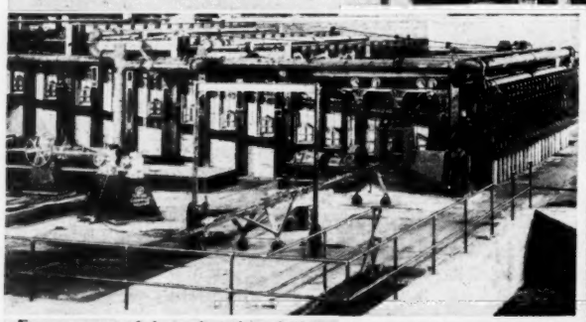
New York—The Electric Hoist Manufacturers' association reports that the number of hoists ordered during September decreased 10.924 per cent as compared wth the previous month, and the value of such orders decreased 13.6 per cent, as compared with August, 1930. Shipments were 13.839 per cent lower in September than in August. It is announced that the next meeting of the association will be held at Hotel McAlpin, New York, Nov. 20. Robbins & Myers Co., Springfield, O., was recently elected to membership.

General Bronze Corp. will fabricate at its Minneapolis plant the Swedish wrought iron work for the 27-story Brooklyn building of the New York Telephone Co.

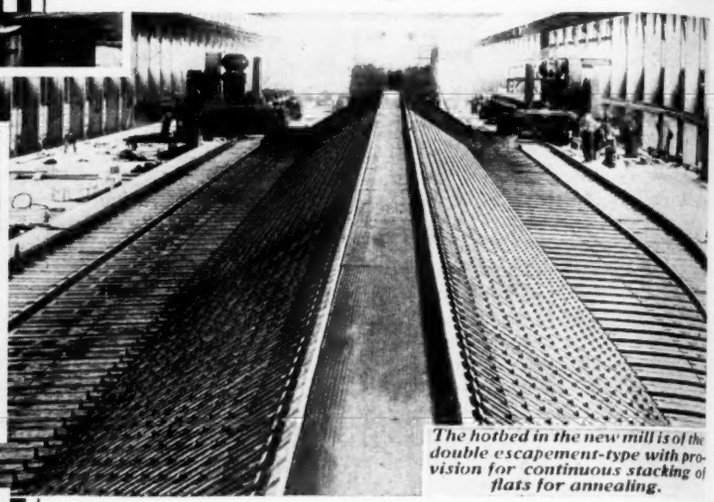
TODAY YOU CAN GET INLAND QUALITY IN THE SMALLER BAR SIZES, TOO



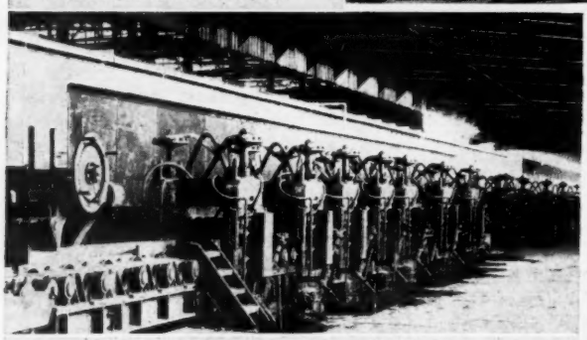
The new 10" bar mill building 2000 feet long by 100 feet wide.



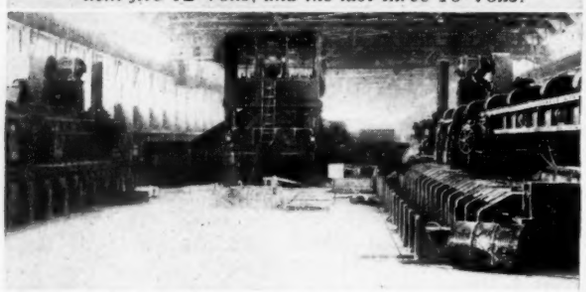
Furnace used in reheating billets for Inland's new 10" bar mill. Coke-oven gas is used for fuel.



The hotbed in the new mill is of the double escapement-type with provision for continuous stacking of flats for annealing.



Inland's new merchant bar mill. There are 15 stands in line. The first seven have 14" rolls, the next five 12" rolls, and the last three 10" rolls.



Flying shear installed after stand No. 15 in the new 10" bar mill.

SAVE WITH INLAND OPEN-HEARTH STEEL

THOSE who appreciate what Inland Quality means in steel will be pleased to know that Inland's new 10-inch bar mill is now completed and in production. The new mill embodies the latest type of equipment and every efficiency of modern engineering. Rounds and flats in coils, bands down to No. 12 gage, the smaller sizes of rounds, angles and other bar-sized shapes are among the products you can now get from Inland.

And the availability of Inland Quality in the smaller sizes is of equal interest to other buyers in the Central West who seek the highest quality in carbon-steel bars.

Inland has produced bars for almost four decades and is consequently fully familiar with the many grades of steel used for this product and the various problems encountered by bar users. With the addition of the new mill, Inland's bar department is well rounded, capable of supplying all of the commonly used sizes of carbon-steel bars.

INLAND STEEL COMPANY

ABLE SERVANT OF THE CENTRAL WEST

38 SOUTH DEARBORN STREET, CHICAGO

Sheets	Bands	Bars	Plates	Structurals
Rails	Track Accessories		Rivets	Billets

Construction and Enterprise

CONCISE, TIMELY BUSINESS BUILDING OPPORTUNITIES IN FIELD OF INDUSTRY

New England

NEW HAVEN, CONN.—Connecticut Bearings Co. Inc., F. C. Bradley manager, 294 York street, manufacturer of roller and ball bearings, will build a 1-story machine shop and garage at 59 Goffe street. Bids are being received. Plans are private. Estimated cost, $40,000.

BOSTON—Knox & Morse Co., 70 Freeport street, Dorchester, will rebuild the machine shop and storage plant occupied by Frank Gould, same address, manufacturer of screw machine products. Estimated cost, $15,000.

BOURNE, MASS.—Rueben Bigelow, Monument Beach, Mass., proposes to build a 1-story boat building plant near here at a cost of about $50,000. Unit will be 60 x 200 feet. Plans are private.

GREENFIELD, MASS. — Mechanics Tool & Wrench Co. has leased the plant of the Threadwell Tool Co. on Arch street, and will establish operations in the new unit. Company manufactures taps, dies, and small tools. Louis E. Peck is president.

New York

BROOKLYN—Technical Metal Finishing Corp. has been incorporated with $10,000 capital by W. Krause, Ozone park.

BROOKLYN—K. & M. Ornamental Iron & Novelties Corp. has been incorporated with $10,000 capital by I. Sobel, 2 Lafayette street, New York, to make machinery.

JAMESTOWN—Invisible Roll Ball Caster Co. has been incorporated with $25,000 capital by M. A. Bissell.

NEW YORK — Phillips' Pump & Equipment Corp. has been incorporated with 100 common shares by S. W. Altman, to deal in electric tools.

NEW YORK—Edison Combustion Corp. has been incorporated with $50,000 capital by M. J. Gordon, 421 Lexington avenue, to deal in metals.

NEW YORK—Modern Carburetor Corp. has been incorporated with $10,000 capital by A. Dlugoff, 154 Nassau street.

NEW YORK—Katzman Sheet Metal & Roofing Works has been incorporated with $2000 capital by Wolf & Jacobi, 122 East Forty-second street.

NEW YORK—Academy Iron Works has been incorporated with $20,000 capital by K. Weinstein, 11 Park place.

NEW YORK—Alpine Products Corp. has been incorporated with $20,000 capital by L. F. Perl, 200 Fifth avenue, to deal in metal novelties.

NEW YORK — Speedwell Bearings Inc., whose incorporation recently was noted, advises that its office is located at 1834 Broadway, and its plant at Long Island City, N. Y. Company is equipping to manufacture special sizes and types of ball and roller bearings to order. (Noted Oct. 16.)

SYRACUSE—Syracuse Lighting Co., South Warren street, has plans for an improvement program, to include construction of a repair and service shop. Total estimated cost of the project, $3,000,000. Melvin King, East Fayette street, is architect.

New Lock Washer Plant Ready for Occupancy

National Lock Washer Co., Newark, N. J., with plants in Newark and Milwaukee, recently completed a new 4-story unit for its eastern plant, at Hermon, Johnson, Dawson and Pennington streets, Newark. All departments will be moved into the structure from temporary quarters and will resume normal operations by Nov. 1.

The structure covers 50,000 square feet and contains a completely equipped shop for the production of car window equipment and marine speedometers, and machining of drop forgings. Drafting rooms, first aid stations and a modern cafeteria also are included.

A feature in the construction of the plant is the use of the inverted girder form of floor support along the outer walls, allowing suspension of flooring from the outer girders, and the installation of glass siding for the full height of the walls.

Cyrus H. Loutrel is president of the company, which was founded in 1886 for the manufacture of a rib-lock washer. Since that time the company has expanded the field of its operations to include numerous items of equipment for transportation vehicles.

Pennsylvania

ERIE—Bender Marine Sales Co., G. F. Bender manager, Ninth and Peach streets, has awarded contract for a 1-story sales, service and storage building, 118 x 170 feet, to be erected on State street. Cost is estimated at $50,000.

GERMANTOWN — Strelz Machine Corp., Philadelphia, has leased a 3-story building on Baynton street, containing 20,000 square feet of floor space. Company manufactures textile machinery.

GROVE CITY — Grove City college proposes to build a new science unit. Estimated cost, $500,000.

LANCASTER—Sneed & Anderson Mfg. Co., 446 Lafayette street, whose incorporation recently was noted, advises through E. J. Anderson, secretary, that the company has leased a plant, but will not need new equipment. William F. Sneed is president. Company will make signs, tubing and restaurant equipment. (Noted Oct. 9.)

MEADVILLE—Cooling Engineering Co. has been incorporated with $100,000 capital by L. A. Cowles, to manufacture and deal in cooling tower equipment.

PHILADELPHIA — Warner Co., 1518 Walnut street, has a building permit for the construction of a machinery repair shop on Beach street. Estimated cost, $5000.

PHILADELPHIA — Reading Co., Reading terminal station, has closed bids for the construction of substations at Ambler, Bethayres, Jenkintown, Lansdale, Neshaminy Falls, Reading terminal and Wayne Junction. Clark Dillenbach is engineer.

PHILADELPHIA—Intercity Oil Co., 322 North Broad street, will install tanks, loading and other equipment, and build a boiler plant as a part of extensions and improvements to its plant on South Fifty-first street. Approximate cost, $100,000. G. Kendrick Bringhurst, 4522 Pine street, is consulting engineer.

PHILADELPHIA—Baker & Neville Inc. has been incorporated with 1000 no par shares by A. K. Althouse, 717 West Marshall street, Norristown, Pa., to design, manufacture and deal in parts and appliances for motors and machinery.

PHILADELPHIA—Tinius Olsen Testing Machine Co., 500 North Twelfth street, advises through Thorsten Y. Olsen, president, that a contract has been awarded for a 6-story addition for storage and assembly purposes, and for an enlarged erecting floor with increased craneway. Expenditure is approximately $75,000. (Noted Oct. 16.)

PITTSBURGH—Contractors' Equipment Service Co. has been incorporated with $10,000 capital by L. Kleinhans, Bellevue, Pa., to manufacture, sell and lease contractors' machinery, tools and supplies.

PITTSBURGH—Alloy Welding &

Mfg. Co. has been incorporated with $75,000 capital by W. L. James, 1115 Metropolitan street, to erect, manufacture and repair machinery and tools.

TITUSVILLE—Titusville Iron Works Co. will construct a plant addition immediately on South Washington street. Company manufactures boilers and tanks.

New Jersey

CAMDEN—J. Giordano & Bro. Inc. has been incorporated with $100,000 capital by F. M. Travaline Jr., to deal in scrap iron and steel.

NEWARK—New York Roofing & Sheet Metal Works has been incorporated with $100,000 capital by Frank P. Padalino, 24 Bradford place.

NEWTON—Board of education may install industrial departments in a new junior high school to cost $175,000. Hacker & Hacker, 201 Main street, Fort Lee, N. J., are preparing plans.

PATERSON—Textile Supplies Inc. has been incorporated with $50,000 capital by Irving L. Werksman, 150 Meade avenue, to deal in textile machinery.

PERTH AMBOY—Board of education is considering installation of equipment for vocational training, in new school under construction. John M. Dockstader, superintendent.

SOMERVILLE — Somerset County board of education proposes to build a vocational school, plans maturing next year. Estimated cost, $150,000.

Ohio

ALLIANCE—Board of education is considering installation of foundry equipment in the high school industrial arts department. Estimated cost, $1000.

BELLEVUE—Bellevue Mfg. Co., manufacturer of stoves and auto supplies, is planning to rebuild four plant units recently damaged by fire. Loss is estimated at $30,000, covered by insurance.

BEREA—Board of public affairs, T. R. Barnum president, plans to purchase equipment to increase capacity of the municipal light plant 1000 kilowatts.

CIRCLEVILLE—Plant of the Container Corp. of America recently was destroyed by fire. Loss is estimated at $100,000.

CLEVELAND—Utilities Electrical Machinery Corp. has been incorporated with 250 no par shares by J. W. Kohn, 732 Leader building.

CLEVELAND—Louis Skolnik, Auditorium Garage building, architect, has plans for a 1-story plant for the manufacture of reflectors at 3856 Woodland avenue. Unit will be 47 x 108 feet. Cost is estimated at $40,000.

CLEVELAND — Industrial Rayon Corp., West Ninety-eighth and Walford streets, has awarded contract to George A. Rutherford, 2725 Prospect avenue, for the construction of a machine shop addition, 120 x 124 feet, at 9801 Walford street. Christian-Schwarzenberg & Gaede Co., Union building, is architect. Estimated cost, $35,000.

CLEVELAND—Waite & Bartlett X-Ray Mfg. Co. Inc. has been incorporated with 250 no par shares by Corporation Trust Co., 1579 Union Trust building. It was recently reported that Picker X-Ray Corp., associated with the Waite & Bartlett Co., Long Island City, N. Y., Harry F. Waite president, has leased 18,000 square feet of space in the Superior-East Thirtieth building for the manufacture of X-ray equipment. About 50 men will be employed by Jan. 1, and eventually 200 will be employed. W. Steinkamp is general manager of the local unit.

COLUMBUS—Jaeger Machine Co., G. Jaeger president, 518 Dublin avenue, will take bids for the construction of a 1-story plant addition, 105 x 250 feet, to be built immediately. Bassett & Tresselt, 257 East Broad street, are architects. Cost is estimated at $75,000.

COLUMBUS—Jeffrey Mfg. Co., North Fourth street and First avenue, will build three shop buildings, two on East Second avenue and one on East First avenue, at a cost of about $150,000. Contract has been awarded to Middle States Construction Co., 1183 Essex avenue. Plans are private. Units will be 72 x 262 and 140 x 152 feet, 77 x 263 feet.

FREMONT—Tindall & Walters Co. has been incorporated with $10,000 capital by Louis E. Tindall and Ollie Waters, to engage in sheet metal work. Headquarters will be at 1600 West Napoleon street.

NILES—Standard Slag Co., Youngstown, O., has completed development of a 75-acre site south of here, and is reported to be negotiating for the sale of the site for a steel works. An open hearth plant involving joint ownership by several companies is proposed.

TOLEDO—France Foundry & Machine Co., 1217 West Bancroft street, has started work on a 2-story foundry, 32 x 100 feet.

WAPAKONETA — Wapak Hollow Ware Co. plant may be acquired by George Trautman, Sidney, O., for establishment of a foundry.

Resale News

Machinery, equipment, raw materials, dies, molds, goodwill and other assets of the Monobloc Co. Inc., New Philadelphia, O., manufacturer of battery cases and other composition products, will be sold at auction Oct. 27. The equipment includes a line of Wellman-Seaver-Morgan 60-inch mixing mills; 200-horsepower motor; other mixers; vertical hydraulic presses; radial drill; shaper; engine lathes; planer; boring mill; milling machines, grinder; drill presses.

□ □ □

Property and equipment of the Keighley Mfg. Co., Pittsburgh, will be sold at public auction Oct. 29. The company manufactured steel ceilings. Property includes two manufacturing buildings, 30 x 100 feet and 30 x 165 feet, a warehouse 60 x 175 feet, and three smaller buildings. Sale also includes all machinery, tools, dies, and equipment.

Indiana

FT. WAYNE—Dudlo Mfg. Co., Wall street, has been made a manufacturing unit of General Cable Corp., 420 Lexington avenue, N. Y., manufacturing insulated wire and coils. Victor F. Rea is manager of the local unit.

FRANKFORT—Warehouse of Kemp Bros. recently was destroyed by fire. Loss is estimated at about $100,000.

WABASH—Rock Insulator Co., with capitalization of $50,000, is a new industry here, and will build a plant, 74 x 160 feet. Machinery will be installed for the manufacture of rock wool insulation.

Michigan

BATTLE CREEK—George R. Rich, president of Rich Mfg. Co., Los Angeles, has arranged to transfer the Los Angeles plant to a location here. An expenditure of $100,000 will provide a plant, 150 x 380 feet, to employ 200 men. Operations are planned for Jan. 1. Company manufactures water and steam valves.

DETROIT — Green Specialty Corp., 5595 Montclair avenue, has been incorporated with 50,000 no par shares by Harry R. Green, to manufacture vending machines.

DETROIT—Cemented Tungsten Tool Co. has been incorporated with 6500 no par shares by Conrad Birghauer, 1050 Mt. Elliott avenue, to manufacture and deal in tungsten carbide tools.

DETROIT — Robinson Mfg. Corp., 17,128 Filer avenue, has been incorporated with $100,000 capital by Frederick R. Robinson, to manufacture and deal in brass, bronze and aluminum products.

DETROIT—Macrae Western Inc., 1501 Beard avenue, whose incorporation recently was noted, advises through K. W. Macrae, president and general manager, that the company has leased the former plant of the Western Gear Co. and will manufacture connecting rods and straight and spiral bevel gears. (Noted Oct. 9.)

PORT HURON—Simplex Engineering Corp. has been incorporated with $10,000 capital by C. Bradford Hitt, to manufacture and sell heating and power plant equipment.

Illinois

CHICAGO—Olive Can Co., 450 North Leavitt street, plans a plant addition, to cost $50,000. Storbel & Hall, 190 North Clark street, are architects.

CHICAGO—Tel Air Mfg. Co., 11 South LaSalle street, has been incorporated with 2500 no par shares by Theodore E. Guy, 11 South LaSalle street, to deal in automobile accessories.

CHICAGO—B. & F. Heating & Ventilating Co., 2752 Fullerton avenue, manufacturer of air conditioning equipment, has acquired a 2-story office and plant unit, 72 x 135 feet, at 815 Larabee street, and will remodel for occupancy.

Southern States

ANNISTON, ALA. — Alabama Power Co., Brown-Marx building, Birmingham, Ala., has started work on three new substations, to cost about $75,000.

DOVER, DEL.—Thomas Grate Bar Co. has been incorporated with $200,000 capital by United States Corporation Co. to deal in grate bars.

WILMINGTON, DEL.—Donnelly Belt Clamp Mfg. Co. has been incorporated with 100,000 common shares by Corporation Service Co., Delaware Trust building, to deal in machinery.

WILMINGTON, DEL.—Avildsen Steel & Tool Co. has been incorporated with $200,000 capital by Corporation Trust Co. of America, du Pont building, to deal in machinery.

WILMINGTON, DEL.—Accelerating Valve Motor Corp. has been incorporated with $100,000 and 2000 common shares by Corporation Trust Co. of America, du Pont building, to deal in motors and engines.

WASHINGTON—Bureau of supplies and accounts, navy department, will receive bids until Oct. 28 for an automatic screw machine, pedestal type tool grinder, electric grinder, drills, polishing lathe, cut-off saw, and other equipment.

MIAMI, FLA. — All-American Airways Inc., J. H. Wentworth president, Court House road, is planning to build hangars at a new airport development at Northwest Twenty-seventh avenue and Gratigny road.

ATLANTA, GA.—West Bros. Sheet Metal Works, F. G. West manager, 1368 Beecher street southwest, has acquired the Atlanta Blow Pipe Co., 293 Marietta street, and will expand facilities for the manufacture of blow pipes and sheet metal products.

SAVANNAH, GA.—Southern States Iron Roofing Co. will provide facilities for the manufacture of steel barrels.

COLFAX, LA.—City council is considering the installation of a municipal light and power plant.

GREENVILLE, TENN. — Pet Milk Co., Arcade building, St. Louis, proposes to construct a plant here for the manufacture of cans to be used in the company's canning plants.

MEMPHIS, TENN.—Plant of the Battery Parts Mfg. Co. recently was virtually destroyed by fire. Estimated loss, $35,000.

MEMPHIS, TENN.—Arran Airways Inc., F. E. Bruce president, box 125, will let contract soon for airport units, to include a 90 x 180-foot hangar. Cost, with equipment, is estimated at $100,000. S. & W. Construction Co., Shrine building, Memphis, Tenn., is architect.

CLIFTON FORGE, VA.—Chesapeake & Ohio railway, C. W. Johns chief engineer, Richmond, Va., will award contract for locomotive shop improvements here. Approximate cost, $150,000.

RICHMOND, VA.—Swanson Aircraft Co. Inc., has been incorporated with $10,000 capital by Swen S. Swanson, 1501 Wilmington avenue.

RICHMOND, VA.—Richmond Label Machine Co. has been incorporated with $50,000 capital by B. O. Woodcock, 3610 Decatur street, to manufacture machines to print labels.

WHEELING, W. VA.—National Coupling & Fitting Co. has been incorporated with $50,000 capital by W. H. Truschel, 1530 Market street.

Missouri

KANSAS CITY—Kansas City Oxygen Gas Co., 2012 Grand avenue, has started construction of a new plant on a site 90 x 125 feet, at Fourteenth street and Burlington avenue. Construction cost is estimated at $55,000. Over $100,000 will be invested in equipment and fittings.

POWERSITE — Empire District Electric Co., Joplin, Mo., subsidiary of Cities Service Co., has started construction of a project at Ozark dam on the White river, near here, which will increase its generating capacity to 27,000 horsepower. New equipment will be installed.

Oklahoma

OKLAHOMA CITY—Bi-Steel Treating Co. has been incorporated with $25,000 capital by J. J. Jones, 1 North Robinson street, to treat steel and metals by a patented process.

OKLAHOMA CITY—Vickers Machine Works is considering removal of its plant from Smackover, Ark., to a location on Southeast Twenty-ninth street. Company manufactures oil well fishing apparatus.

CHICKASHA—Lone Star Gas Co., 1915 Wood street, Dallas, Tex., plans construction of a compressor station near here. Direct connected engine compressors, valves, and fittings will be purchased. J. L. Foster is chief engineer.

STILLWATER — City council has selected a site of 240 acres for an airport project. Improvements are pending.

TULSA—Hart Bros. & Co., W. J. Hart manager, 203 Alexander building, has plans to manufacture a tool device to steam out paraffine in oil wells.

Texas

FT. WORTH—A. Z. Boiler & Tank Co. has been incorporated with $100,000 capital by W. A. Atherton, 700 Front street.

GALVESTON—City council's sponsorship of a municipal airport project is pending. J. E. Pearce is mayor.

HARLINGEN—Cosby Co. is building a plant to manufacture automatic land leveling machinery.

HOUSTON — Cameron Iron Works Inc., 711 Milby street, is erecting a plant addition, 86 x 120 feet. Estimated cost, $30,000.

PLAINVIEW — Magnolia Petroleum Co., Magnolia building, Dallas, Tex., will erect a unit 48 x 100 feet, to be used as garage and pumphouse.

PLAINVIEW—Texas Utilities Co., subsidiary of American Community Power Co., Planters building, St. Louis, proposes to build a steam-operated power plant at Tuco, Tex., at a cost of about $450,000.

Wisconsin

BURLINGTON—Lawrence Mangold has a contract for the construction of a warehouse and repair unit for the county highway committee. Unit will be 50 x 70 feet.

MILWAUKEE—Milwaukee Valve Co., 139 South Burrell street, plans to build additions to its tool and pattern shops, a new forge shop, and to increase its foundry facilities for casting bronze, brass and aluminum. Preliminary plans are being made. Maturity late this year or early in 1931. John Fraser Jr. is president.

Minnesota

MILACA—Eastern Minnesota Power Corp. is improving its power plant here with an addition, including a cooling tower. Cost is estimated at $10,000.

Iowa

CEDAR RAPIDS—Iowa Mfg. Co., 924 Sixteenth street northeast, Howard Hall president, has started work on a 60 x 205-foot assembly plant. Estimated cost, $20,000. Company manufactures rock crushers and road machinery.

SIOUX CITY—Deere & Co., Moline, Ill., manufacturers of agricultural machinery and implements, have awarded contract for the construction of a 3-story warehouse, 69 x 186 feet, to be erected at Jones street and Missouri River road. Cost, including office structure, $96,000.

Kansas

COFFEYVILLE—Jenson Bros. Mfg. Co., manufacturer of oil field pumping equipment, will build an addition to its plant, 90 x 200 feet. Machinery to be purchased includes turret lathes, drill presses and shapers. W. G. Jenson is president and general manager.

Colorado

HAYDEN—City proposes to develop an airport here. Site has been selected.

LONGMONT—City council is considering erection of an addition to the municipal light and power plant.

SAGUACHE—Airport project is being developed by the local post of the American Legion and Saguache Kiwanis club. Site has been selected.

Montana

LIVINGSTON—Montana Power Co. has started construction of a new plant here at a cost of about $75,000.

Pacific Coast

LOS ANGELES — Public Service Brass Corp., 2901 East Slauson avenue, William F. Schultheiss president and general manager, plans a plant addition to increase production 75 per cent. Present floor space is 40,000 square feet. Cost is estimated at $30,000.

LOS ANGELES — Western Automatic Sprinkler Co., 204 North Los

Angeles street, recently noted as planning a new unit on East Twelfth street, will build a plant 50 x 156 feet of which 36 x 50 feet will be two stories. Construction will cost $14,000. Cranes will be needed. Company, S. F. Martin president, will become Viking Automatic Sprinkler Co. Hamm, Grant & Bruner Inc., 307 South Hill street, are architects and engineers. (Noted Oct. 9.)

OAKRIDGE, OREG.—Cascade Utilities Co. plans to build a hydroelectric power plant at a cost of about $200,000.

SALEM, OREG.—City plans to build a municipal light plant. Bond issue for $5,000,000 is being promoted.

SEATTLE—Winston Bros. are building a warehouse and storage unit at 4580 Colorado street.

SEATTLE—Emmett Wrench Co. has been incorporated by Frank E. Wood, Securities building, to manufacture and sell a patented wrench.

SEATTLE—Ford Motor Co., Fordson, Mich., has prepared final plans for its proposed assembly plant here and has has presented them to city council. Plant will have 500,000 square feet of floor space and will cost approximately $3,000,000.

SOUTH BEND, WASH.—Modern Mining & Mfg. Co. has been incorporated with $10,000 capital by R. N. Payne to engage in metalliferous mining.

Dominion of Canada

EDMONTON, ALTA.—University of Alberta has awarded contract to R. H. Trouth & Co., Canadian Pacific railway building, for erection of a machine shop. C. S. Burgess is architect. Cost is estimated at $20,000.

BANCROFT, ONT.—Bancroft Power Co., Harry Studwick secretary, has started work on a power plant here. Approximate cost, $50,000.

TORONTO, ONT.—Service Station Equipment Ltd., 101 Hanson street, has awarded contracts for the construction of a plant addition. Cost is estimated at $15,000.

TORONTO, ONT.—Board of control is considering installation of new equipment in the high level pumping station, to cost $25,000. R. C. Harris is commissioner of works.

TORONTO, ONT.—Zanogen Steel Co. of Canada Ltd. has been organized here to handle the products of W. Fearnehough Ltd., manufacturer of shear blades and machine knives, of Sheffield, England, local address 34 Britain street. Latter company will expand its local machine shop and shear grinding department.

EAST MONTREAL, QUE.—Canada Wire & Cable Co. Ltd., 940 Inspector street, will start work at once on construction of a plant on Durocher street. Building will be 100 x 650 feet. Estimated cost, $175,000.

MONTREAL, QUE.—Canada Cement Co. Ltd., Phillips square, has started an expansion program involving new plant units and new equipment. Total estimated cost of the project, $3,000,000.

MONTREAL, QUE.—Jenkins Bros. Ltd., Rockfield and Dominion streets, is having plans prepared for construction of a foundry and other units. Bids for construction and equipment will be called during the winter.

MONTREAL, QUE.—Bonna Pipe Co. of Canada Ltd., care of B. & S. H. Thompson Ltd., 485 McGill street, will establish a plant here for the manufacture of steel core reinforced concrete pipe. Plant is to be completed by January.

QUEBEC, QUE.—American Brake Shoe & Foundry Co., 230 Park avenue, New York, proposes to build a foundry here.

LA FLECHE, SASK.—Machine shop owned by Fortune Poliquin recently was destroyed by fire, with a loss estimated at $10,000.

New Trade Publications

IRON PLATE SPECIFICATIONS—American Rolling Mill Co., Middletown, O., devotes its current engineering bulletin to presentation of suggested A. S. T. M. specifications for open-hearth plates.

FORGINGS—A bulletin by the Camden Forge Co., Camden, N. J., gives pictorial and textual information on its hammered wrought iron forgings for railroad work, with microphotographic illustrations showing structure of the metal and tests showing its strength.

STEEL SPECIFICATIONS—A reprint from the report of the iron and steel division of the Society of Automotive Engineers has been issued by the International Nickel Co., New York, containing standard specifications for steels. This gives greater distribution of these important data.

HIGH SPEED STEEL—Two grades of its high speed steel are described in a booklet issued by the Firth-Sterling Steel Co., McKeesport, Pa. Characteristics of the steels and their performance are described and illustrations show their applications to various machining uses.

FLOOR TRUCKS—Its complete line of standard and special floor trucks is covered in a catalog by the Lewis-Shepard Co., Boston. The line is designed to meet specific problems. Arc welding is used for all joints. The line includes jacklifts, stackers, platforms and racks.

LUBRICATION—In the current issue of its publication devoted to lubrication the Texas Co., New York, takes up automotive production machinery and discusses problems of lubrication applicable to this class of equipment. Illustrations show machines equipped for best results. Various systems of supplying lubricants are discussed.

DEMAND METER—For kilovolt-ampere measurement in connection with analysis of loads the Sangamo Electric Co., Springfield, Ill., has developed a demand meter which is featured in a current bulletin. Illustrations show the meter and all its parts, the principle of operation is discussed and its operation described.

CONTROL INSTRUMENTS—A folder giving a quick airplane view of its line of recording and control instruments is being circulated by the Brown Instrument Co., Philadelphia, in the hope it may suggest to users of industrial equipment means for obtaining savings in operation by their use. Each page is devoted to a suggestion for application of an instrument to an industrial unit.

ELECTRICAL HEATING—Industrial electric heating equipment forms the subject of a catalog of the Westinghouse Electric & Mfg. Co., industrial heating division, Mansfield, O. It contains a list of definitions, applications of furnaces, determination of sizes and descriptions of the various units of heating equipment.

DIE HEAD—A die head for application to automatic, semiautomatic and hand-operated threading machines is described in a bulletin by the Landis Machine Co. Inc., Waynesboro, Pa. It is made in standard and internally-tripped types. The bulletin illustrates salient features of the head and gives specifications and diagrams of parts.

ELECTRICAL EQUIPMENT—Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has issued several leaflets, as follows: Universal motors for vacuum cleaners, fans and portable electric tools, adding and calculating machines and various similar devices; single-stage condensate pumps for use where low operating heads are encountered, multistage units being used for application with high pumping heads.

WATER-TUBE BOILERS—An improved form of the long-drum horizontal water tube boiler which has been in development for several years is featured in a catalog of the Murray Iron Works Co., Burlington, Iowa. Illustrations show the complete boiler, details of its construction and numerous buildings in which these boilers have been installed. The catalog is designed to be of assistance to consulting and operating engineers and owners of large power plants.

TURRET LATHES—Gisholt Machine Co., Madison, Wis., has prepared a catalog of its high production turret lathes. It is more than a list of the machines, containing many pages of information for users of turret lathes. Manufacturers of parts in quantity will find answers to many questions on speed and low cost. Those making small-lot jobs will find discussion of their problems. Special fixtures and tools designed for special needs are also described.